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Original Articles

LEPROSY IN THE PHILIPPINES, WITH AN ACCOUNT OF ITS TREATMENT WITH THE X-RAY.*

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MANILA, P. I.

As is generally known, leprosy is diffusely scattered throughout the entire Philippine archipelago, not being much more abundant in any one locality than in another. The actual number of cases is variously estimated at from 5,000 to 10,000. Whether the disease is increasing or decreasing at the present time can hardly as yet be even surmised, nevertheless we do know that in the neighborhood of Manila, where for several years an attempt has been made to segregate it in this hospital, we are constantly receiving new or previously unreported cases. The new admissions during the past three years since I have been in charge of the hospital, have been variable as to the apparent stage of the disease, but it is extremely rare to find a case in which the disease is limited to so small a localized region of the body, as to indicate recent local infection. On the other hand, a large proportion of new patients admitted to the hospital give an undoubted history of the disease dating back from one to ten years, from which fact I am sure that in practically all cases the disease could have been diagnosed earlier, had the patients been examined by an experienced physician. It is also quite probable that we are surrounded by, and more or less in constant contact with, numerous cases of leprosy in its early stages of development.

It is practically impossible to draw any reliable conclusions as to the exact duration of the disease in any given case on account of the general ignorance of the masses, with reference to its early recognition and differentiation from numerous other skin diseases so common here, as well as to their lack of fear of the disease and their consequent inclination to conceal its presence in order to avoid segregation or confinement. Also the point of inoculation or the source of infection can rarely, if ever, be determined on account of our inability to locate the cases at an early stage of the disease, or to ascertain the approximate time of infection. These difficulties are increased by the customs of the natives which dispose them to frequent change of residence and association, as well as by the fact that anywhere they happen to go they are liable to find one or more sources of infection in the immediate neighborhood.

While from these remarks it can be seen that the exact method by which this disease spreads is very doubtful, still there have been a few facts noted among our cases which throw some light on the subject.

We find that for several years past there has been only one case where a husband and wife have been known to have the disease, and in this case the disease appeared at the same time in both, indicating a common origin rather than a transfer from one to the other.

Of numerous children born in the Philippines of leprous parents (seven in this hospital, three having both parents leprous, but not married), none have been known to suffer leprosy.

I have been able to locate five cases in which a parent and child have both had the disease, but the development occurred toward the end of the child's adolescence, appearing at about the same time in both parent and child, the child developing the disease first in three cases, and the parent first in two cases, thus indicating common origin and not transmission from parent to child.

We have had five families represented by two children; three families represented by three children; and one family represented by five children. In this latter family there were ten children, the other five with both parents remain free from the disease.

From these facts, I am inclined to believe that the disease is rarely, if ever, transmitted from parent to offspring, and is with difficulty transferred directly from one person to another, but there frequently exists a common source of infection to which the members of the same family may be subjected especially during early childhood.

For the purpose of the following comparative observations I have taken the histories of 239 patients, 238 of whom were in the hospital at the time when these statistics were prepared, December, 1904, while the other was admitted soon afterward and is included on account of the subsequent improvement and cure under *x*-ray treatment. As can be readily understood, many difficulties were encountered in obtaining accurate histories of these cases, the principal of which being the variety of languages spoken, Spanish, Tagalog, Ilocano, Visayan and Bicol being represented, and the sluggish mental condition of many of the patients due to their station in life and their long, hopeless confinement. In this work, as well as in the microscopic examinations of slides and the use of the *x*-ray apparatus, I have been efficiently assisted by Dr. Rizal Mercado, the house physician, and by Miss R. Mickle, one of our trained nurses, both of whom kindly volunteered their services.

With each case we carefully inquired into the history of the development of the disease, especially with reference to the time when the first symptoms appeared, the time spent in this hospital and the existence of the disease in relatives. Then an examination was made of the present condition of the body, noting the parts involved, the class of variety of the disease, whether hypertrophic, atrophic or mixed, the amount of disfigure-

* Read before the Manila Medical Society, 1905.

ment estimated in per cent. of disability and the percentage of vitality. Ordinarily, vitality and disability would vary inversely one with the other, but disability is here used to mean the disability caused by the maiming action of this particular disease, while vitality is used in its ordinary general sense.

After this procedure, microscopic slides were made of scrapings from the specific lesions and, in all cases found negative by the first slide, three additional slides were more carefully made and examined. If these slides were not positive, for the purpose of classification, we called the case bacteriologically negative, although in most cases we carried the work further for the purpose of reconfirming the negative examination.

In the classification of the varieties of this disease, I have used the terms hypertrophic and atrophic in place of the more ordinarily used terms tubercular or nodular and neurotic or anesthetic, as I find that these latter terms are liable to much confusion as well as being, in fact, misleading. Under the head of hypertrophic cases, we include cases showing tubercles and nodules or mass and plate-like increase of tissue, while under atrophic we include those cases showing scars and glossing of skin, anesthetic patches, wasting away of the fingers and toes, etc.; in other words, when hypertrophy exists we call the variety "hypertrophic," and when atrophy exists we call it "atrophic."

The hypertrophic forms develop most rapidly and are usually diagnosed earlier; they ulcerate freely and promptly and the lepra bacilli are easily found in great abundance in all cases by simply taking a scraping from any of the hypertrophied parts (Fig. 1). The atrophic forms develop more slowly, rarely, if ever, ulcerate; the bacilli are found with difficulty in scrapings and the patients display the greatest variety of deformities, with frequent loss of toes and fingers.

The mixed variety is simply a combination of the other two, usually one form being apparently of much more recent origin than the other.

Of the 239 cases reported, 97 are hypertrophic, 47 atrophic, 92 mixed and 3 undetermined; one of the latter being probably atrophic and two not leprosy at all, but lupus vulgaris. In the entire number of patients the disease has existed to an extent to be recognized for an average period of 8.11 years, and the average period of their residence in this hospital has been 2.55 years. Seventy-seven of the patients have had the disease for 10 or more years, twelve for 20 or more years, one for 31 years and one for 41 years. Seven patients have been in this hospital for 10 or more years, two for 17 years and one for 18 years. Of the forty-seven atrophic cases, I find that the average time during which the patients have been known to have had the disease has been 12.28 years, while the average time in this hospital has been 4 years.

Fig. 1.—Case 9. C. de los S. This photograph was taken Nov. 9, 1904, and shows well-marked hypertrophic leprosy. She has improved slightly under treatment.

Fig. 2.—Case 8. M. M. This photograph was taken Nov. 7, 1904, and shows hypertrophic leprosy before treatment.

The average estimated disability or deformity for the entire 239 cases is 53 per cent.; twelve patients show no disability; ninety-six show less than 50 per cent. disability; thirty-seven show 50 per cent. disability and ninety-four show more than 50 per cent. disability.

The average vitality of the entire number is estimated at 68 per cent. There are five patients with 100 per cent. vitality, or practically normal; 158 with more than 50 per cent.; fifty-six with 50 per cent.; and twenty with less than 50 per cent. vitality.

On microscopic examination of scrapings from the leprotic lesions, I found 193 positive for the lepra bacilli by the first slide taken and 46 negative. Subsequently I made three slides from each of these 46 negative cases and found 20 of them positive, there remaining 26 permanently negative for lepra bacilli in scrapings from the skin. I have made numerous subsequent

Fig. 3.—Case 8. M. M. This photograph was taken Sept. 23, 1905, and shows marked reduction of leprotic deposits after *x*-ray treatment.

Fig. 5.—Case 5. D. P. This photograph was taken Jan. 19, 1905, and shows entire disappearance of leprotic deposit, only scar tissue remaining.

Fig. 4.—Case 5. D. P. This photograph was taken Nov. 7, 1904, and shows patient after disappearance of most of the leprotic deposit.

Fig. 6.—Case 12. A. M. This photograph was taken Jan. 19, 1905; *x*-ray treatment was begun Jan. 9, 1905, and marked improvement has already been noted. This photograph shows *x*-ray burn on the cheek.

examinations of many of these negative cases and continue to find them negative, but in a few patients who have since died, I have been able to demonstrate the bacilli in nerves which supply the atrophied regions of the body. It is interesting to note that all of these twenty-six permanently negative cases belong to the atrophic variety, except three. One of these three is classed as doubtful, but I am inclined to class it as atrophic, while the other two are probably lupus.

X-RAY TREATMENT.

The treatment of leprosy with *x*-rays was begun by me in this hospital in January, 1904.

In treating the patients, I have always selected the part of the body which presented the greatest amount of leprotic deposit and usually exposed it to the rays for ten minutes at a distance of from seven to ten inches. The distance and time of exposure were varied somewhat from time to time, and an effort was made to approach as near to the point of burning the skin as possible without actually doing so. In only two cases was the skin actually burned, and it is interesting to note that they are the first two patients herein reported as cured. During treatment, the patient never suffers and can only notice a slight tickling sensation over the area treated as if a slight wind was blowing on the skin. After two or three successive treatments, a blushing of the skin may or may not be noted, and usually a sensation of itching is experienced by the patient. Should superficial burns occur, treatment for the time should be suspended until tissue repair begins. These burns have shown little tendency to progress and have healed readily, leaving little or no scar.

Below will be found a tabulated list of thirteen patients treated during the past year. All these patients have been natives of the Philippines, and are numbered from 1 to 13 for easy reference:

No.	Sex.	Age.	Duration of Disease in Years.	Number of Treatments.	Date of Treatment.	Result.
1	F.	15	9	44	Jan. 31, 1904. Jan. 23, 1905.	Not improved
2	M.	8	1	13	Apr. 23, 1904. Nov. 21, 1904.	Not improved
3	M.	8	5	11	Apr. 23, 1904. Nov. 21, 1904.	Improved.
4	F.	10	3	12	Apr. 23, 2904. Nov. 21, 1904.	Not improved
5	M.	37	1	14	Apr. 11, 1904. Sept. 8, 1904.	Cured.
6	F.	12	5	40	Sept. 10, 1904. Feb. 1, 1905..	Improved.
7	F.	14	4	37	Sept. 10, 1904. Jan. 23, 1905.	Improved.
8	M.	13	4	38	Sept. 10, 1904. Jan. 23, 1905..	Improved.
9	F.	12	7	14	Oct. 25, 1904. Jan. 23, 1905.	Improved.
10	M.	16	5	12	Oct. 27, 1904. Jan. 20, 1905.	Improved.
11	M.	36	18	15	Oct. 27, 1905.. Jan. 17, 1905.	Improved.
12	M.	19	2	52	Jan. 9, 1905.. June 7, 1905..	Cured.
13	M.	25	2	14	May 8, 1905.. June 7, 1905.	Cured.

As will be seen by an examination of the table, three patients have been cured, seven improved and three not improved.

I am unable entirely to explain why Cases 1, 2 and 4 were not improved by the treatment, still in none of these cases did we have a large mass of leprotic tissue to which we could apply the rays. In Case 1 the patient had a few patches scattered over the face and body, and while the individual patches to which the rays were applied improved slightly, the disease apparently continued to progress in other parts of the body. In Cases 2 and 4 the patients had practically no localized patches, and the treatment was stopped after a short unsuccessful trial.

In Cases 3, 6, 7, 9 and 10 the patients showed definite improvement with considerable decrease in leprotic deposit, the advance of the disease being apparently for the time checked. In Case 10 the patient showed marked decrease of facial hypertrophy, but at the same time a loss of general health, possibly due to an over dosage of necrotic elements.

Cases 8 and 11 were both unusually far advanced and the patients were badly disfigured; they both improved to a marked degree, not only in parts of the body exposed to the *x*-rays, but in distantly removed parts of the body which the rays did not reach. In Case 11 the man had enlarged and ulcerated ears, lumps on the face and enlarged, thickened and ulcerating hands, with loss of the ends of several fingers. After application of the rays to his hands, where the tissue showed the greatest hypertrophy, not only did his hands decrease in size and the skin clean off, but the ears became smaller, the ulceration healed and the skin of the face became more normal. In Case 8 the patient showed very unusual nodular developments over the face. With treatment, these nodules gradually disappeared to a very marked extent, as seen in Figure 3. The gradual improvement in this case seems to be progressing, if anything, more rapidly at this time, September, 1905, than at any previous time, although treatment has been suspended since January.

CASE 5.—D. M., male, native of medium size, aged 37, was admitted to hospital July 29, 1904. A clinical diagnosis was made of well-developed hypertrophic leprosy. On the day of admission duplicated slides were made from skin scrapings and were sent to the government laboratories; both were reported positive for lepra bacilli.

Examination.—On admission the patient appeared fairly well nourished. He talks Spanish unusually well and is much above the average in intelligence. He had been employed in the United States Quartermaster's Department as a laborer. The right side of his face showed marked thickening of the skin and superficial tissues, the entire surface being elevated from about one-half to three-quarters of an inch and of a deep purplish-red color. The thickening of tissues was so great that his right eye was practically closed and the right ear enlarged from two and a half to three times its normal size. On the point of the chin there was a nodular enlargement about the size of a horsechestnut. On the forehead, the left cheek, the chin and the neck were numerous small nodules about the size of a split English pea.

Treatment.—On August 11, *x*-ray treatment was begun, the application being the rays from a bifocal tube at a distance of ten inches for ten minutes.

Treatment as on August 11 was repeated on August 12, 13, 15, 16, 17, 18 and 23. On examination August 23, I found that the tumefaction of the face was markedly reduced and that the right eye could be more widely opened. Superficial ulceration or burns had appeared on the helix of the right ear and on the eminence of the right cheek, from which ran a sero-purulent fluid. Treatment was suspended for the time.

August 31: The superficial burns had somewhat increased in size since last treatment and a tendency to break down was noted in the nodules on the chin and on the side of the neck.

September 4: The burns had dried over and were covered with scabs or crusts. X-ray treatment was resumed.

September 9: There was still a superficial burn about the size of a twenty-five cent piece on the eminence of the right cheek. The ear, chin and neck were better. X-ray treatment was given on September 4, 7 and 8, but had now been discontinued.

September 22: The burns on cheek and chin alone remained and they were nearly well. The face and ear were much reduced in size and all the nodules heretofore noted and also two or three on arms appeared to be gradually disappearing. The large nodule on the chin was much reduced in size.

October 15: The patient had gradually improved. Most of the hypertrophy of face and ear had disappeared, leaving considerable scar tissue. The eye was wide open and the outer canthus was beginning to be drawn outward by scar tissue. The right ear was still somewhat enlarged, especially the lobule. Pus taken from the partly broken down nodule on the chin showed lepra bacilli.

November 7: Photograph taken November 7 (Fig. 4) shows the condition clearly. The right ear, especially its lobule, was still somewhat enlarged. The face showed some inflammatory and much scar tissue. The chin showed some of the small nodules, but the large one had practically disappeared.

December 15: Skin scraped from the cheek showed a few scattered lepra bacilli. Skin and serum taken from healed nodule on chin showed a few scattered, imperfectly stained, apparently beaded and broken-up lepra bacilli. Pus and serum from crust on the right ear showed no lepra bacilli. The patient was rapidly improving so far as his leprotic manifestations are concerned, but his general physical condition was not good and he seemed to be losing in general health.

Jan. 12, 1905: Three days previously a soft, indolent, fluctuating abscess appeared in the right groin just above Poupart's ligament, and, on being opened January 12, discharged about eight ounces of yellow, thick pus. Microscopic examination of this pus showed numerous streptococci, but no lepra bacilli.

January 19: Photograph taken January 19 (Fig. 5) shows plainly the improvement in face and ear.

February 2: Microscopic examination of skin and serum taken from the right cheek showed a very few scattered, beaded and apparently broken-up lepra bacilli, but no clumps. Specimens taken from several other parts of the body were negative.

July 1: The appearance of face and ear were normal so far as leprosy is concerned, but there was considerable white scar tissue scattered over this area. No part of the body showed any signs of existing leprosy. Microscopic examination of skin scrapings from different parts of the body, especially right side of face, nose and chin, were all negative. The general physical condition of patient deteriorated rapidly during the past six months and he was suffering from general anasarca and from anemia; he also had albumin in the urine.

July 11: Patient died. The cause of death was general debility following atrophy of liver, anemia and general anasarca.

Autopsy.—Autopsy held by Dr. Maximilian Herzog, pathologist of the government laboratories, the summary of whose autopsy report, with his full microscopic report, follows:

D. P., male, Filipino, 37 years of age. Autopsy held three hours after death showed: Fatty degeneration of myocardium and kidneys, with interstitial nephritis, advanced atrophic cirrhosis of liver, purulent abscess in the anterior abdominal wall just above Poupart's ligament, anemia and edema of brain, general anasarca and general profound anemia. The serous cavities and soft tissues all contained serous fluid in considerable amounts. There were old pale cicatrices of the right side of the face; the integument in many places was somewhat scaly, but nowhere were there seen formations such as we find in tubercular leprosy.

Microscopic Examination: Tissues were taken for microscopic examination from the following places and organs: Two pieces from the left side of face from the area which appeared somewhat depressed, pale and cicatricial in character, from the ear which formerly had presented a nodular tubercular appearance, from the kidneys, spleen, liver and heart and from several peripheral nerves. These tissues were fixed in Zenker's fluid, subsequently embedded in paraffin, sectioned and stained with hematoxylin-eosin and with Ziehl's carbolic-fuchsin and methylene blue.

In the sections from the skin and those from the ear, which latter took in all of the tissues of the concha, the subcutaneous layers showed patches of a subacute, loose, inflammatory infiltration composed of lymphoid cells. In these areas, however, neither epithelioid nor giant cells were found. Likewise lepra bacilli could not be demonstrated. The liver presented the histologic picture of a well-advanced cirrhosis. The increased interacinous connective tissue was mostly of the fusiform variety with a few small, round lymphoid cells here and there. Lepra bacilli were not demonstrated in the hepatic sections. An examination of the renal, splenic, cardiac and nerve sections likewise failed to show lepra bacilli.

In other words, neither the histologic nor the bacteriologic examination in this case furnished any evidence at all that the patient at the time of his death was suffering from leprosy, either cutaneous or internal. (Signed) Herzog.

CASE 12.—A. M., male, Filipino, aged 19, was admitted to the hospital Dec. 12, 1904. A clinical diagnosis of hypertrophic leprosy was made. The duration of the disease was said to be about two years.

Examination.—On admission the patient appeared well nourished and in good general health. He had numerous dark, reddish, elevated leprotic patches on the face, arms, legs, and more especially on the back. The individual patches appeared congested and puffed out and seemed to be about one-eighth of an inch higher than the surrounding skin. The fingers of both hands were drawn to a half-shut position, and there was slight contraction of the muscles of the legs so that his walking was impaired. On December 14, microscopic examination of skin scrapings from cheek showed lepra bacilli present.

Course of Disease.—On Jan. 9, 1905, *x*-ray treatment was begun; applications were made to the lesions on the right side of the face at a distance of eight inches for ten minutes. The *x*-ray was applied on January 9, 10, 11 and 12. On January 12 a small blister was noted on the cheek about the center of the point of exposure.

January 19: A photograph was taken (Fig. 6); a blister on the cheek had gradually enlarged to the size of thumb nail and then scabbed over. X-ray treatment had been transferred to a larger blotch on the back which is oval in shape, about three and a half inches by two and a half inches in size, abruptly elevated one-eighth of an inch above surrounding parts and deep red in color. A portion of the spot treated on the face showed some fading of color and reduction of elevation. One spot on forehead not treated directly has been reduced from a very perceptible elevation.

January 31: This patient had been treated seven times up to date, viz.: January 9, 10, 11, 12, 19, 20, 21 and 23, and showed marked reduction of the cutaneous manifestations of leprosy, not only at the points treated, but to just as great an extent on parts of the body most distant from the points of application.

July 1: There had been a wonderful improvement in all of the leprotic manifestations of this patient during the past five months, during which time he had had seventeen applications of the *x*-ray, making a total of twenty-four applications. All the elevated, dark-colored spots on the face and body had disappeared and were replaced by slightly depressed, light-colored, scar-tissue-like spots, which appeared slightly striated and drawn as if by newly formed connective tissue.

The deformity of the fingers had disappeared from all except the little fingers and had markedly decreased in them. The defect of the muscles of legs had entirely disappeared and the patient walked naturally.

July 21: Three microscopic examinations were made, one from cheek and two from back; all were found negative.

July 25: Three microscopic examinations were made; one from the face, one from a scraping of the mucous membrane of the nose and one from the back; all were found negative.

July 27: Microscopic examinations were made of tissue from arms and cheek; all were negative.

August 3: Three microscopic examinations were made; all were negative. The patient was considered cured.

August 8: Four microscopic slides were made by Dr. M. Herzog and examined at the government laboratories; all were found negative.

August 16: Three slides made on this date and three on August 14 were all found negative.

September 30: The patient remained apparently well, and frequent microscopic slides made recently all proved negative for lepra bacilli (Fig. 7).

CASE 13.—B. M., male, Filipino, aged 25, was admitted to

hospital Feb. 21, 1905. Duration of the disease was about two years. The clinical diagnosis was atrophic and hypertrophic leprosy.

Examination.—On admission the patient appeared to be in fairly good general health and a little above the average in intelligence. He had a slightly elevated, dark leprotic patch on the upper lip, covering in the region of the mustache and extending slightly beyond, a patch the size of a silver twenty-five cent piece about the center of the left cheek, and one the same size on the anterior surface of right elbow. The posterior surface of the right elbow showed some anesthesia and the skin was glossy. There was beginning atrophy of the right little finger nail, and this finger was contracted to an angle of about thirty degrees, the next finger was bent to an angle of fifteen degrees and this entire area showed slight anesthesia. A microscopic examination of skin scrapings from the patch on upper lip showed lepra bacilli.

Course of the Disease.—On May 8, 1905, *x*-ray treatment was begun on the upper lip.

July 1: X-ray treatment had been given fourteen times: May 8, 9, 12, 13, 17, 19, 22, 24, 26, 29, 31, and on June 2, 5 and 9. The patient appeared practically well on July 1, only a slight discoloration remaining on the upper lip. Lepra bacilli could not be found there.

Fig. 7.—Case 12. A. M. This photograph was taken Sept. 23, 1905, and shows scar tissue where leprotic deposit formerly existed and entire disappearance of lepra bacilli.

August 1: It was impossible definitely to outline the patch which formerly existed on the upper lip; not only had the infiltration entirely disappeared, but the discoloration practically all had been absorbed. It was difficult to locate the spot that formerly existed on the cheek, and the other manifestations had likewise decreased (Fig. 8).

On several occasions I have been unable to find lepra bacilli, and on account of the entire disappearance of deposits I have included this patient among those cured, although I am continuing treatment and am not satisfied of the permanency of the cure for two reasons: First, because the disappearance of symptoms has been too recent, and second, because in one of a number of slides taken August 3, from this patient I found several doubtful acid-fast objects which appeared to be broken-up and degenerated lepra bacilli. Slides taken on August 11 and 16 have all been negative.

GENERAL REMARKS.

As may be seen from the above, there is absolutely no doubt that at least one patient (Case 5) with genuine leprosy has been cured by the application of *x*-rays. This case I have reported in considerable detail with every practicable form of confirmatory evidence in order to establish the fact as a basis for future work along this line. As may be noted, this case was clinically diagnosed not only by myself, but by numerous other physicians, the diagnosis was twice confirmed, by microscopic examinations made at the government laboratories, and on three successive occasions confirmed by myself microscopically. The treatment and gradual improvement was watched by quite a number of physicians in Manila. Then we have the cure represented in a photograph and also confirmed by myself several times microscopically and finally confirmed both macroscopically and microscopically at the autopsy by the government laboratories. The only part of the record with which I am not satisfied is the photographic, as I should like to have had a photograph showing his condition on admission. The other two patients reported as cured are now in apparent good physical condition, and I hope that their future history may demonstrate the permanency of the cure.

Fig. 8.—Case 13. B. M. This photograph was taken Sept. 14, 1905, and shows absence of leprotic patch over upper lip and left cheek and disappearance of lepra bacilli after *x*-ray treatment. No photograph was taken before treatment.

HOW DOES THE X-RAY TREATMENT OPERATE?

I am inclined to believe that when a local lesion of leprosy is treated with *x*-ray, the organisms there localized are killed and their bodies absorbed by the system

thereby producing an immunity against the living organisms. This as may be seen would be practically analogous with the immunization ot individuals against bubonic plague by injecting into them killed cultures of plague organisms. In our case we simply grow the culture of lepra bacilli in the human body as a culture medium and then kill them by the use of the *x*-rays.

In support of this theory, I cite the following facts:

First. The treatment of one leprous spot on a patient produces improvement in spots at a distance from the one actually treated.

Second. The cure in the distant spots seems to progress parallel to and to be just as complete as in the one treated.

Third. The best results seem to be obtained only when treatment is pushed to the point of killing or beginning to kill the tissues, which would also probably be to the point of killing the organisms.

Fig. 9.—Case 10. P. P. This photograph was taken Nov. 7, 1904, and shows a case of well-developed hypertrophic leprosy.

Fourth. Cases in which there are massive localized leprous deposits, as in Case 5, are most rapidly improved. As in these cases, we have an abundant culture on which to operate and thereby produce immunity more rapidly.

Fifth. In diffuse general involvement of slight degree or atrophic character where there are only a few scattered organisms we have had little success.

Sixth. In two well-advanced cases in which the amount of new leprotic tissue was excessively great, the improvement was marked and rapid, but followed by loss of general health and rapid physical decline (Figs 9 and 10). This may be an over dosage, so to speak.

LIMITATIONS AND DIFFICULTIES ENCOUNTERED IN THE USE OF THE X-RAY MACHINE.

Being so far away from the source of supplies, we have had much trouble in keeping a satisfactory supply of tubes and in having repairs made to our *x*-ray machine. I have not as yet been able to find any one in or near Manila who really understands all the parts of an *x*-ray machine so that defects could be located and repaired without delay. The repair work has fallen mostly on myself, and while I am able to take the machine apart and frequently successfully to repair it, still it is often a process of try and see and often try again. The tubes frequently burn out or wear out, their internal resistance becoming too high and not infrequently the sparking power of the machine falls from ten inches to even three or four inches, thus rendering it useless. One time the batteries are at fault, next and most frequently the interrupter is at fault, then the Leyden apparatus is blamed, and finally the internal resistance of the tubes becomes too great. So I must admit that to use an *x*-ray machine for from twenty minutes to one hour a day over a period of several months and to get active effective results from it is not an easy matter.

Fig. 10.—Case 10. P. P. This photograph was taken Sept. 15, 1905, and shows reduction of leprotic deposit with loss of physical health after *x*-ray treatment.

In conclusion, I wish to express my gratitude to Major E. C. Carter, U. S. Army, our former Commissioner of Public Health, for the interest which he took in procuring the necessary apparatus and for the encouragement which he gave me during the progress of this work.

Tuberculosis.—Ch. Sangmann, in the reports of the sanatorium of Velefjord for 1904 (*Archives Générales de Méd.*), declares that Flügge's theory that tuberculosis is disseminated by coughing is not supported by his observations. Out of 182 physicians who have served in the sanatorium from 1846 to 1882, all before the recognition of the infectious nature of consumption, only nine ever suffered from tuberculosis. From further data collected by Sangmann, including the figures from 69 sanatoria with three or four physicians and 66 physicians connected with laryngologic clinics, he has not been able to find a single case of infection acquired by a physician in the exercise of his profession.

MOSQUITO WORK IN RELATION TO YELLOW FEVER ON THE ISTHMUS OF PANAMA.*

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ANCON, CANAL ZONE.

I shall confine myself more particularly to the question of yellow fever and malarial fever. While we have to deal with all tropical diseases on the Isthmus and to establish a health department such as any community of the same size in temperate zones would be obliged to have, these two diseases, yellow fever and malaria, were the great ones that had caused the principal mortality in the two great works before undertaken down there, namely, the building of the railroad and the attempted construction of the canal by the French. The conditions were much the same as had confronted us in Havana, with the exception that in Cuba we had for two months in the year cool weather during which mosquitoes bred scarcely at all; in Panama there is no difference of season except that between the wet and dry season, and mosquitos breed as readily in January as in July. Another difference is that at Panama we have a country district of 50 miles in extent to guard against malaria troubles; in Havana we merely had the suburbs of the city to attend to in this respect.

During the French occupation the heavy mortality among their European employés had been a potent factor in the failure of the canal work. It is difficult for us to get statistics that represent exactly the losses under the French. Their work was done under the contract system, the canal line having been divided up into seventeen divisions and let to seventeen different contractors. These contractors were charged a dollar a day for every sick man to be taken care of in the hospitals of the French company. The tendency would be, therefore, when a man became sick for his employer to discharge him so that he would not have to bear the expense of his care. The French company were building a canal through the Columbian territory, just as the Pennsylvania Railroad built its track through Pennsylvania; they had no police control whatever of the territory along the canal. They had no means of telling how many of these employés of the contractors died along the line. All that they could know was that so many reported for work each day; what became of the others they had no means of telling. At their large hospital, Ancon, they kept very accurate statistics, and the number of deaths that occurred there can be safely quoted as entirely correct, but it leaves a very great limit of uncertainty as to what portion were treated in hospital and what proportion died along the line. The English consul, who was down there during the period of construction, is inclined to think that more deaths of employés occurred out of the hospital than in it, and he had very good opportunities for judging. Nine-tenths of the laborers were Jamaica negroes, English subjects, and looked to the English consul for care and protection. The consul tells me that he personally knows of a great many being found dead along the roadside while endeavoring to find their way to him in the City of Panama, and some even dying in his office. On the other hand, the old French superintendent of hospital, Dr. La Croisade, who is still with us, thinks that the hospital statistics represent most of the deaths.

It seems to me, both from what I can find out as common opinion on the Isthmus, and what would seem to me to be human nature under the circumstances, that it is a fair conclusion that the French statistics represent not more than half the mortality that actually occurred. And in quoting these statistics I will ask that this be borne in mind.

The United States Government took over the canal property in May, 1904, but for various reasons there was considerable delay in getting sanitary work fully started, and the authority for doing sanitary work in the towns of Colon and Panama was not granted till toward the latter part of February, 1905. We then built up much the same organization here that we had developed in Havana. All cases of yellow fever were required to be reported to the American health authorities, and in addition to this, all cases of fever of any kind occurring in an American were also required to be reported. It was a considerable advantage to us in Panama that the equipment of our hospital allowed us to give very much better nursing, care and medical attention to all patients than could be obtained elsewhere on the Isthmus. For this reason, Americans generally reported to the hospital when they had fever of any kind, and we usually got cases of yellow fever within the first day or two of the disease. This resulted favorably to the patient as well as to the sanitary authorities; while the general mortality was about 25 per cent. of all cases, the mortality of the Americans treated in our hospitals was not more than 10 per cent.

As soon as we took possession of the hospital, we had two wards thoroughly screened and equipped for keeping out mosquitos, just as had been our wards in Havana. The suspected patient, when brought up, was placed in one of these wards. It is interesting to see what entire confidence all of our people soon acquired in the mosquito theory of the transmission of this disease. Ancon Hospital is beautifully situated on the side of the Ancon Mountain overlooking the City of Panama and the Pacific Ocean. It is pleasantly laid out in graded roads and paths beautified with tropical shrubbery of all kinds, and embowered in a grove of rubber trees and royal palms. Twenty years ago, under the French, it soon became infested with yellow fever, and every poor Frenchman who came in from whatever cause contracted yellow fever, and more than half of those who contracted this disease died. I was informed through the old superintendent who was in charge at the time, that in one day they lost from yellow fever three of their medical staff and in the same month nine of the same body. Of the 36 sisters whom they brought over as female nurses, 24 died of yellow fever. One of the chiefs of our supply department who came over in the early French days told me that he was one of 18 young French engineers who came over in one vessel; that in a month after their arrival all had died but himself. I am merely mentioning these details to show how different the circumstances are at present.

For nearly two years now we have constantly had yellow fever in these wards; the nurses and physicians are all non-immunes, yet not a single case of yellow fever has been contracted in this way. The nurses never seemed to consider that they were running any risk in being with yellow fever cases night and day in these screened wards, and the wives and families of the officials connected with the hospital lived about the grounds in all directions with the knowledge that yellow fever is constantly being brought into the grounds and treated in the buildings contiguous to them. I do not say this at all in criticism of the French. Under the same circum-

* Address delivered before the American Society of Tropical Medicine, Dec. 8, 1905.

stances twenty-four years ago I doubt if we could have done any better, but the knowledge acquired by Reed's board and Finley's persistent propaganda, have enabled us absolutely to exclude all probability of any contraction of the disease in our hospital. An American sick from any cause at Panama has no fear whatever of being treated in the bed next to that in which his companion is being treated for yellow fever. Dr. Carter and I live in the old ward used by the French for their officers. In this building, I suppose it is safe to say, more men have died from yellow fever than in any other building of the same bed capacity at present standing. We have our wives and children with us. Ten years ago I would have thought this the height of recklessness, but to-day, by taking precautions which are now recognized in yellow-fever work, we all look on ourselves almost as safe as we would be here in Philadelphia. In the yellow-fever wards the additional precaution is taken of putting each new patient in a wire cage just large enough to cover his bed. Here he is kept until the infectious period of the disease has been passed. Of course, in so important a matter as treating yellow fever in a general hospital, no possible chance of the spread of infection can be taken, so that in addition to every possible measure for keeping mosquitoes out of the ward and away from the yellow-fever patients, we also fumigate these wards every two weeks, so that if a mosquito should get in and bite a patient she would not have time to become herself infected. You will recollect that a period of time of from twelve to fifteen days has to elapse from the time that the female stegomyia bites the yellow-fever patient till she herself becomes infected and is able to convey the disease; therefore, if we fumigate every two weeks we would catch all mosquitoes before they had time to do harm.

The case having been reported in the city and the patient having been removed in a screened ambulance to the hospital, orders would be given from the central health office to the proper fumigating brigade to fumigate this house and all the contiguous houses, with the intention of killing the mosquitoes who gave the disease and also those that had bitten the yellow-fever patient, and if left alone would become dangerous in a couple of weeks. The stegomyia is a very domestic mosquito and generally does not leave the house where she is born and bred and does not stir much from the room where she has lived; probably the fumigation of the house itself would catch all infected mosquitoes, but as an additional precaution the contagious houses were taken, so that if by accident an infected mosquito had drifted from her original locality, she would be caught. The fumigating squads were composed of an experienced foreman and twenty men. They carefully pasted the house just as one would if one were going to disinfect with formalin. The fumigating material generally used was sulphur, sulphur being decidedly the best mosquitocide we have, but in many buildings, such as stores and the better class of residences, there are many articles that are seriously injured by sulphur. In such cases we see Persian insect powder, pyrethrum; but in the use of pyrethrum care has to be taken that the mosquitoes are swept up and destroyed immediately after the fumigation. If this precaution is not taken a few may revive and again become dangerous. The patient is not forced to go to the hospital if he does not so desire. If he elects to be treated at home, the central office is so informed and the carpenter squad, who have screens on hand prepared for this purpose, are ordered down and screen the patient in so that he is protected from mosquitoes and those that are in the room can not get out. Only one exit is left the room, a guard is placed who keeps the key of the door and only allows those in and out who are authorized by the physician. The fumigation in the rest of the house is then finished and the screened room is fumigated when the case has terminated.

As I have just stated, the stegomyia is a very domestic mosquito. She is very cleanly in her habits and breeds principally in clean rain water. In Panama the population have depended principally on rain water for domestic purposes, so that every house had cisterns, water barrels and such receptacles for catching and storing rain water. These we had to cover so that mosquitoes could not have access to them; for this purpose the city was divided up into small districts with an inspector in charge of each district. This inspector is required to get around his district at least twice a week, and make a report on each building with regard to its condition as to mosquito breeding. All the cisterns and water containers in Panama have now been covered and in the water barrels spigots so placed that the covers do not have to be taken off when water is drawn. About the first of March, when the first inspections were made, in the neighborhood of 4,000 breeding places were reported. On the last of October, when the last inspection was reported just before I left Panama, less than 400 receptacles containing larvæ were recorded. This, I think, will give you a fair idea of the decrease in mosquitoes through the City of Panama.

In the City of Panama we found by count that 90 per cent. of the mosquitoes were stegomyia. This is another point in which we greatly differed from Havana. In Havana we found by count that only about 5 per cent. of the mosquitoes were stegomyia. This about covers the ground of the methods adopted for controlling yellow fever. Of course, you can see how very important it is for us to get hold of every case of yellow fever as it occurs; particularly is this the case at present, when it has about disappeared. The governor has offered a reward of $100 for any case of yellow fever reported to the authorities. Between Panama and Colon there are some twenty villages running from 500 inhabitants up to 3,000; yellow fever in the last year has occurred at several of these villages. A queer thing about yellow fever is the fact that the natives in a locality where it frequently occurs are entirely immune, and not liable to contract a disease, so that in these small towns it is only the American employé who can have yellow fever. They usually live in frame buildings, well separated from the surrounding buildings, and it is a very simple thing to fumigate such buildings at once when a case occurs, and to get rid of the disease. We have not had a single instance of failure in disinfection in any of these small towns.

The results of this work have been the apparent elimination of yellow fever. In June, on the zone, we had 67 cases, in July 40 odd cases, in August about 27 cases, in September about 7 cases, in October 3 cases, and none in November and none so far in December. In the town of Colon our last case occurred July 23. Of course, it would be too early to say that yellow fever had been entirely eradicated from the Isthmus. This can not be affirmed with any certainty until the full life of a female stegomyia mosquito has been passed since the last case. In Havana, at Las Animas, we had a female stegomyia mosquito live in captivity for 150 days. So I think we ought to let at least two months pass without a case before we can say with any certainty that yellow fever has been eliminated. The same measures for the control

of yellow fever and the extermination of the stegomyia mosquito were taken at Colon and at the various places along the line of the canal. While yellow fever has a great moral effect on the force, and was more important from this point of view to us than any other disease, malaria was the disease that had always caused the greatest loss from disability, that is, in a large force of men more days were lost from work on account of malaria than probably from all other disease put together.

My paper has already extended to such lengths that I can not go into a detailed description of the measures taken against malaria. They were the same as those outlined at Havana, and that are now so generally in use in the United States, principally superficial ditching. The results have been as satisfactory as they were in Cuba. In October we had a force of 22,000 men on our pay roll; of this number 21 per thousand were sick daily. This is an exceptionally small sick rate, very much less than is the average for our army in the Philippines. I think it safe to say that we are now digging the canal with as little trouble from sickness as would be the case if a similar number of men were engaged in a similar project between Philadelphia and Batlimore, and I see no reason why this rate should not be continued or even improved on. Water supplies are being put in, sewage systems constructed, houses repaired and built, food supplies and cooking arrangements constantly improved.

MEDICAL FORGERIES.

S. D. VAN METER, M.D.
DENVER.

It is fortunate for society that most of us are not familiar with the many disheartening pages of criminology, because we experience sufficient disappointments early in life to shake the most optimistic faith in human nature; but there are certain phases of moral perversion of which but little is known to the expert criminologist, much less to the general masses. Untrodden ground is always interesting, and especially so if publicity of the unknown discovered there can benefit mankind.

Fig. 1.—Altered diploma of George A. Elliott. Identification is unquestionable, as it bears the Colorado Registration Board's inspection mark on its reverse side. This document was hanging in Ryetzel's office when arrested in Chicago by the federal authorities.

The study of the many medical forgeries and frauds that are perpetrated on the unsuspecting public throughout the world, but more especially in this country, where our laws regulating the practice of medicine are so ineffective, offers a field for investigation replete with examples of moral turpitude comparatively unknown to the medical profession and of which the general public has no conception. If such were not true public opinion relative to the suppression of charlatanry would not be what it is to-day. When a traveler is relieved of his purse by the highwayman the people are up in arms and ready to mete out the death punishment without aid of court or jury. How different is the situation when those entrusted with the administration of our medical laws try to punish these robbers of the credulous sick!

The public is prone to assume, without investigation, that the medical boards are prompted by professional spite and jealousy in such prosecutions; and without the support of public sentiment the best law is seldom operative. It seems incredible that any one could be so thoughtless in the exercise of Nature's first law, self-preservation, not to use every effort possible to prevent the criminally inclined from entering a field where, when legally installed, he has the opportunity to deceive and prey on the ignorant and educated alike with but little fear of detection.

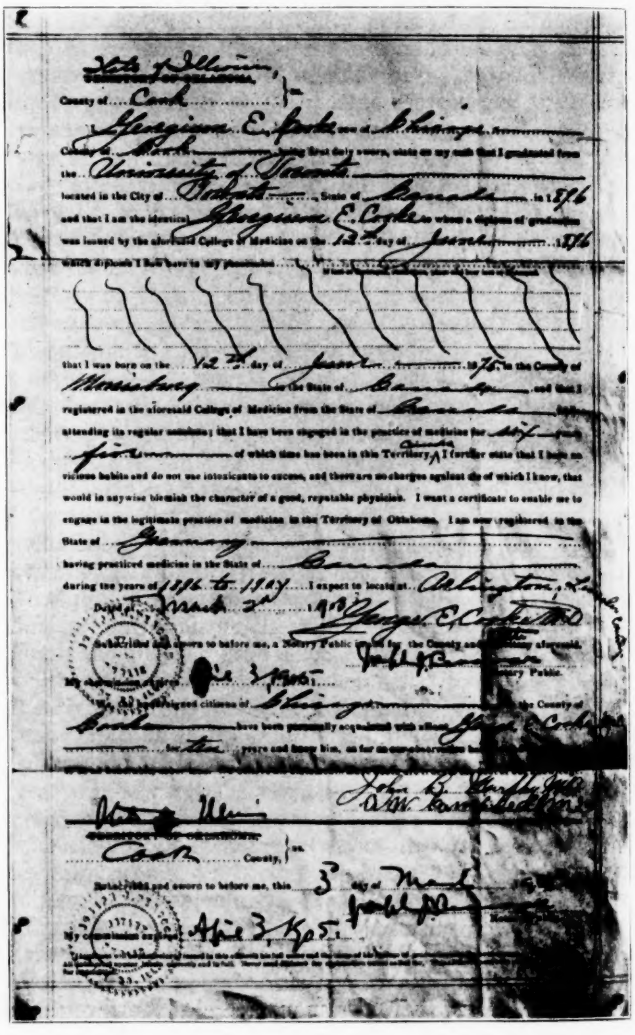


Fig. 2.—Forged application affidavit used by Ryetzel under the alias of Cooke to secure a license in Oklahoma. The signature of John B. Murphy is in the handwriting of Marietta Inman. Ryetzel's last wife.

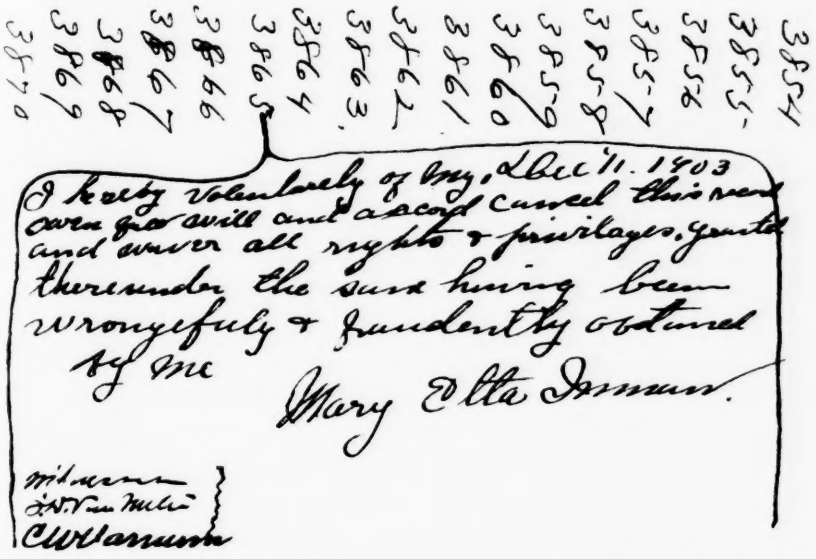


Fig. 3.—Reproduction from the records of the Colorado Board of Medical Examiners, book B, page 222 showing the cancellation of the forged registration No. 3,865, of Mary Etta Inman. Note that the handwriting is the same as the forged signature of Dr. John B. Murphy in Ryetzel's Oklahoma application.

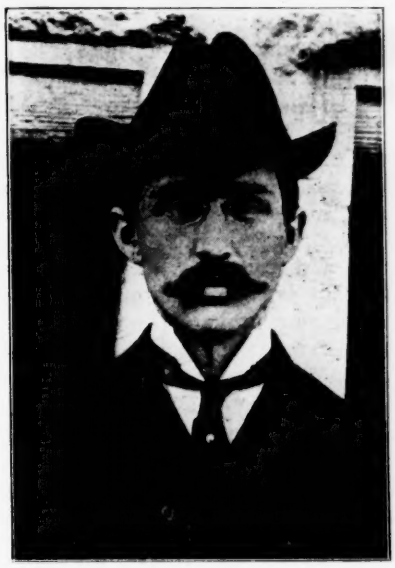


Fig. 8.—A. Edward Ryetzel as Dr. George A. Elliott when arrested for the murder of Sarah Vance, Oct. 29, 1902.

Fig. 4.—Signature of the real Dr. George A. Elliott, of Leamington, Ontario.

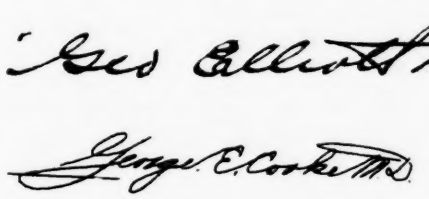


Fig. 5.—Ryetzel's signatures under the aliases of Elliott and Cooke. Note how well he has succeeded in copying the genuine signature of Dr. George Elliott.

Fig. 6.—Ryetzel's signature, showing his fondness for using unearned professional titles.

Fig. 7.—A. Edward Ryetzel as Charles Fox, convict No. 2865, Illinois State Reformatory, Aug. 4, 1897.

I have long entertained the opinion that if people had the faintest idea of the frauds being perpetrated by this class of criminals the existing public sentiment in relation to the enforcement of laws regulating the practice of medicine would be entirely changed. To this end a brief epitome of the following cases selected from those coming under my observation will, it is hoped, serve to illustrate the degeneracy of medical forgers, aid in bringing some of them to justice, and perhaps save a few unsuspecting mortals from their merciless clutches.

THE RYETZEL CASE.

In the spring of 1902 a man claiming to be George A. Elliott, M.D., University of Toronto, 1896, presented to the Colorado Medical Board for registration a genuine diploma of that school, name and date. The diploma was not questioned as to genuineness, and the board, after requiring the customary affidavit and payment of fee, issued a temporary license. The authentication investigation of the applicant's credentials, while not conclusive, led us to believe that he was the person to whom the diploma had been originally issued, and at the following meeting of the board he was granted a permanent license. He immediately opened an establishment in Denver which purported to be a private surgical hospital for women. The advertisements in the daily papers, however, at once revealed its true character. The Colorado medical statute had no provision for the revocation of a license except on the ground of the conviction of the licentiate of conduct of a criminal nature, so that our board was powerless to revoke his license. We still supposed he was a man of ability, but one who had fallen from ethical practice.

In a short time he made application to join the Colorado State Eclectic Medical Society, and the committee on admission inquired at the office of the Colorado State Medical Board as to his credentials, graduation, etc. The fact that the University of Toronto was not an eclectic school immediately suggested that this man could not be the original Dr. Elliott. After a prolonged

search the real Dr. Elliott was located in Leamington, Ontario. Before we could get out papers for the arrest of his impersonator the latter was jailed on the charge of criminal operation on the person of a Miss Sarah Vance, the unskillful technic of which had caused her death. In his attempt to cover up this deed he frightened the girl's fiance into suicide and tried to secure interment of the body by signing the burial certificate as one of death resulting from hemorrhage of the stomach due to gastric ulcer. He was allowed bail, which he promptly "jumped," and had it not been for the fact that the United States postal authorities had a case against him for sending immoral literature through the mails it is very probable he never would have been compelled to stand trial for this fiendish murder, which, according to one of his accomplices, was one of many.

Investigation of this impostor's record revealed that his right name was Albert Edward Ryetzel, originally from Chicago; that he had served a sentence for larceny in the Illinois State Reformatory (Pontiac) as Charles Fox (No. 2865), from which institution he was paroled June 11, 1898, to D. K. Carter of Chicago. He reported once after being paroled, then ran away with $40 and assumed the alias of Dr. Bennett.

Under this alias his record is not very complete. In 1900 he appeared in Kansas City, Kas., as Dr. George A. Elliott, where he conducted a place similar to his Denver institution. While in Kansas City a Swiss midwife, Adele Cornely-Cachoud, was supposed to be his wife. She came with him to Colorado, but his affections were soon transferred to one Mary Etta Inman. To get rid of the Cornely woman he induced her to send some immoral literature through the mails. As soon as she was arrested he arranged for her bond and then persuaded her to return to Switzerland. He was not shrewd enough in this scheme, as the federal authorities arrested him as her accessory.

After forfeiting bail in the Vance case he discovered that George E. Cooke, who was graduated from the University of Toronto in 1896, had qualified and located in Chicago, and later, like George A. Elliott, had returned to Canada. Ryetzel then erased the name of Elliott from the University of Toronto diploma in his possession and substituted that of Cooke, assumed his fourth known alias, and commenced practicing in Chicago under the name of George E. Cooke, who the records in Springfield showed had been duly licensed. The postal authorities were too keen, however, and he was soon caught and turned over to the criminal court in Denver to stand trial for the criminal operation and murder in the Sarah Vance case. He was tried and convicted on the first charge, fined $1,000 and sentenced to the penitentiary for three years at hard labor. When he has served this sentence he will have to stand trial on several other charges, and it is to be hoped that he will be kept for many years where he can not endanger the lives of the unwary.

As soon as the Cornely woman returned to Switzerland he married Mary Etta Inman, although Adele Cornely was at least his common-law wife. He caused to be published in THE JOURNAL of the American Medical Association of July 12, 1902, an announcement of his marriage to "Viola A. C. Cornely, both of Denver," notwithstanding that at the time she was on her way to Switzerland, and further that the records in Denver show that he was married to Miss Inman on July 18, 1902. It has been ascertained that his marriage to Adele Cornely was a mock ceremony and that he had also been married in Chicago to a Mary Kaurin in February, 1902. He induced Miss Inman to make false representations to the Colorado License Board and to secure thereon a fraudulent certificate (No. 3865), which she was compelled to cancel, as is shown in the reproduction of such cancellation. While in Chicago under the alias of Cooke he made application to the Oklahoma State Medical Board, and had the undaunted nerve to use the name of so prominent a surgeon as John B. Murphy as one of his sponsors. It does not require the aid of an expert to see that the signature purporting to be Dr. Murphy's is in the same handwriting as the cancellation of Mary Etta Inman's registration.

The exceptionally good imitation of George A. Elliott's signature Ryetzel succeeded in making is conclusive that he had in some manner secured a sample of the latter's handwriting as a copy. How he obtained the Elliott diploma is as yet unsolved, but if the story of Mary Etta Inman is to be believed, certain individuals holding positions of honor in their respective communities should feel a sharp prick of conscience when they read this article.

Ryetzel's demeanor as a criminal before the bar of justice is one of coolness personified. Thief, forger, murderer and bigamist, fiend incarnate as he is, he is different from the ordinary criminal. Unquestionably he is a degenerate, a man who is most dangerous to himself and society, one who, if there is not sufficient evidence to cause his execution, should certainly be kept under restraint. His scrapbook, filled with clippings of his own and similar advertisements, is a rare collection, notwithstanding its worthlessness save to those engaged in the same unlawful occupation, as a book of reference for style and diction.

This résumé of Ryetzel's known record is not complete, but it is sufficient at least to give a fair idea of the depravity of a man who, that he might satisfy his base desires, stopped at nothing and lived principally by the murder of innocents. With all his hardened conscience, the ordinary murderer would shrink from such deeds and blush for shame.

THE CORY CASE.

During the summer of 1900 a woman assuming the name of Dr. Emma W. Cory applied to the Colorado Medical Board for a license to practice medicine. As evidence of educational qualification she presented a certificate from the secretary of the medical department of the University of Michigan to the effect that one Emma W. Mooers had received the degree of doctor of medicine from that institution in 1884. She set forth in her application affidavit that her maiden name was Mooers; that she had married a man by the name of Cory, and that she had lost her diploma by fire. She was granted license (No. 3206) and began to practice under the name of Cory. Her subsequent actions, as is usually the case with this class of impostors, convinced the board that she was a fraud. However, suspicion without proof is worthless, and after considerable search for the original Dr. Mooers, we dropped the case.

Not long afterward Dr. (?) Cory chanced to meet Dr. Laura L. Leibhardt, a classmate of Dr. Mooers, and in the course of conversation inadvertently made the statement that she was graduated from the University of Michigan in the class of 1884 and that her maiden name was Emma Mooers. Dr. Leibhardt recognized that she was an impostor and reported her to the board. To make a clear case it was necessary to find the real Dr. Mooers. We renewed our search and located her in Waverley, Mass., where she was pathologist to the McLean Hospital.

At the preliminary trial Dr. (?) Cory held fast to her claim that she was the Emma W. Mooers who was graduated from the University of Michigan in 1884. When questioned as to how it happened that she was not lame, whereas the Emma Mooers known to Dr. Leibhardt was, she admitted that she had been lame, but claimed by a certain course of treatment to have been entirely cured. She was bound over to the district court, where she was convicted and sentenced to one year in state's prison. On account of her sex and her children the court allowed her to go on parole. Soon after the expiration of her sentence she embarked once more as a would-be disciple of the healing art, but this time as an Eddyite.

At the trial in the district court Dr. Mooers appeared as a witness, although it necessitated a trip of 5,000 miles, made possible by the aid of the medical faculty of her alma mater. It did not take the court and jury long to decide between the real and the impersonator—the one a lady of culture and refinement, the other a base, degraded criminal. It was subsequently learned that Dr. (?) Cory had impersonated Dr. Mooers in several other states and had succeeded in eluding the officers, making good her escape each time when hard pressed. These successes explained her boldness when arrested in Colorado. From her advertisements it was plain to be seen she was engaged in the same nefarious work as Ryetzel.

THE WARREN CASE.

Unquestionably this case is one of the unique examples of medical forgery, or to be specific, graduation by proxy, on record. The star of this little drama is Dr. (?) Augustus H. Warren of Chicago. Owing to the defective medical statute he cannot be disturbed so long as he remains in that state, nor can the Illinois State Board of Health revoke his medical license, known to have been fraudulently obtained, if their present construction of the law is correct. He originally hailed from Indiana, Pa., where he was accused of arson to secure insurance money. From Pennsylvania he drifted west in the early eighties, and for several years was "barker" for a traveling medical faker. The opportunities this position offered for observation of the gullibility of the public in matters medical no doubt convinced him that a better field did not exist wherein he could obtain money under false pretenses than in that of quackery. To succeed, however, he must possess a medical diploma, and the story of how he obtained it reveals a talent for scheming worthy of use in a better cause.

The records of the Omaha Medical College show that in the spring of 1885 one Sidney H. Knowles was graduated from that institution. In the fall of that year he appeared in New York City under the alias of A. H. Warren, where he matriculated in the graduating class of the medical department of the University of New York as a graduate of the Omaha Medical College, 1885. At the time of this matriculation he gave his age as twenty-six, which compares with that given when he entered the Omaha Medical College in 1884. Inasmuch as the records of the Omaha Medical College show that no one by the name of Warren ever matriculated in that institution, it is conclusive that Dr. Knowles must have used his notice of graduation, or some similar credential, changed to the name of Warren, when he matriculated in the University of New York. He was graduated from that university in the spring of 1896 and turned his diploma over to Warren. We are informed that Warren stood the expenses of Knowles while in New York and gave him $1,000 for the diploma. Rather a profitable winter's work, when a postgraduate course at one of the best medical colleges in the country is considered. Knowles went west and practiced on his Omaha diploma. When last heard of he was in Bremerton, Wash., but like the history of all evil-doers, his life has been full of thorns. Verily, verily, "the way of the transgressor is hard"!

Warren succeeded in gaining legal standing as a physician in six states on the diploma issued by the University of New York to Knowles as A. H. Warren. Since passing out of my hands, however, it is not likely this diploma will be presented to another license board, inasmuch as the red-ink inscription on the face thereof would be decidedly detrimental to the chances of the applicant presenting it.

Warren used every scheme known to the charlatan in fleecing his victims, but his special method was to have an advance agent proclaim his coming as a renowned physician particularly skilled in the cure of cripples and incurables. He advertised not only "no cure, no pay," but declined to take any money until the cure was satisfactory to patient or guardian. By this means he could secure the promise of a larger fee, and in making his contracts he used an ingeniously devised note drawn so as to read that it became null and void if for any reason the signer was dissatisfied with the result in the case under treatment. This part of the contract was so cleverly arranged that it could be torn from the rest and leave a straight negotiable note. After securing as many such notes as he could in a community he would take them to a bank and dispose of them by allowing a liberal discount. So clever a man is he that in one rich farming district alone, with only two weeks work, he departed to pastures new with $2,400 gathered in. It is needless to say he never returned or sent further recommendation as to administration of medicines he left, which on analysis proved to be principally common salt and water, with a little inert coloring matter added to disguise them.

THE HAGEN BURGER CASE.

Degeneracy with criminal inclination is dangerous enough when co-existent with the manners and facial expressions of a criminal, but when discovered in people of genteel appearance, pleasing address and good physiognomy it becomes a much greater danger to society. Such characters are occasionally seen in all classes of criminals, but nowhere in the annals of medical forgery can there be found a better example than in the person of a man who claims the name and titles of Dr. med. Gottfried Leonhard Hagen Burger, M.S., Ph.D., F.R.C.P.S. (King), of 867 Beacon Street, Boston.

This wonderful medical savant's history, so far as can be determined, does not, like most noted men, commence with the date and place of birth, parentage, etc., because it is impossible to trace it further back than the early eighties, when he was graduated from the American College of Veterinary Medicine of Brooklyn. After graduation he opened in that city a veterinary hospital, which he subsequently sold. He then took up the study of law, but soon chose medicine as the profession he would assume, and after a few months spent in visiting European clinics, we find him in Helena, Mont., claiming to be an M.D. from the University of Kiel, Germany. His career in Montana was of short duration, notwithstanding it was full of tragic and dramatic experiences. How he passed the examination and secured a license to practice in that state is difficult to understand when certain facts relative to his forged credentials and lack of educational and moral qualifications are considered. By whatever manner or means it was accomplished the

incident serves as an object lesson which proves that the mere possession of a diploma, without proper authentication and careful scrutiny, as a prerequisite to admission to state board examination is not all that advocates of such a statutory provision claim.

His career in Montana as a self-styled specialist in abdominal surgery came to a climax when he performed his first celiotomy on Mrs. A. J. Schumacher, the wife of a prominent mining engineer of Butte. She promptly died and her husband came near bringing Herr Hagen Burger's earthly career to a sudden and tragic end. It was not so ordered, however, and with aching bones and bandaged wounds he left the state between suns.

A few months later he made his debut in Colorado. His failure as an abdominal surgeon had veered him to another line of practice. At that time he was overflowing with personal proclamations of his skill and experience

Fig. 9.—A. Edward Ryetzel as Dr. George E. Cooke when arrested in Chicago by the United States postoffice authorities, June 6, 1903 (reproduction from a newspaper picture).

as a medical practitioner, disclaiming any predilection for the surgical side of the profession. His special hobby was a great invention of a room in which the atmospheric pressure could be controlled. By such a contrivance he proposed to procure for pneumonia patients in high altitudes an environment exactly the same as produced by the natural barometric conditions at sea level. He lost no time in calling on the secretary of the State Medical Board, ostensibly to inquire of the requirements for licensure, but in reality, like the ordinary bunco man, to size up the secretary, because, as was afterward discovered, he was thoroughly informed as to the provisions of the Colorado law. He claimed to be a graduate of Kiel and Wurzburg, but stated that as there was some uncertainty about his locating in Colorado, he would not make application for license; that he was on his way to New York to see about the manufacture of his pneumonia room, and should he decide to return to Denver he would then file his application and credentials.

It must be confessed that in spite of my self-esteem as a reader of human nature, this man, with his suave manner and general appearance, deceived me completely. I put him down as one of those pseudo-scientific cranks who think they are going to revolutionize the accepted theory and principles of practice. On his return he took particular care not to come near the office of the medical board, although he had the audacity to open an office in the leading hotel in Denver and send out a card to the medical profession (excepting the members of the medical board) announcing himself to be specially prepared to conduct all kinds of clinical examinations, and

Universitatis Urbis Novi Eboraci
Omnibus et Singulis Hasce Literas Lecturis
Salutem in Domino Nostro Jesu Christo Sempiternam.
Augustum H. Warren.
Candidatus.

Fig. 10.—Reproduction of diploma issued by the University of New York to Sidney H. Knowles as Augustus H. Warren.

that he would limit his practice to the "diseases of the stomach, abdomen and chest." As evidence of his qualification he added the following:

Late assistant with Chauta and Chrobak, Vienna.
" " " Ewald, Boas and Baginsky, Berlin.
" " " Leopold, Dresden.
" " " Kehrer, Heidelberg.
" " " Koch, Senator and Rosin Charity Clinic, Berlin.
Late assistant with Leube and Maetrstock, Wurzburg.
" " " Fisher Col. Uni., New York City, C. P. and S.
Late assistant with Cabot and Hewes, Harvard Laboratory, Boston.

The idea of being "Late Assistant with" eight prominent medical men from Berlin to New York is too inconsistent to need comment. The board's first knowl-

edge that he was practicing in Colorado came in the form of an inquiry from the city health officer asking if he was a licentiate in medicine in Colorado. He had been arrested for reporting a case of smallpox as typhoid fever. As he had not even filed an application for a license, we notified him that unless he immediately complied with the medical practice act he would have to answer a charge of practicing medicine without a license. His application was forthcoming, in which he made a sworn statement to the effect that he was a medical graduate of the University of Kiel, 1896, and an M.D., Ph.D., Wurzburg, 1887. In support of his affidavit he presented two documents, one from Wurzburg, purporting to grant the combined degree of doctor of medicine and surgery and doctor of philosophy; the other from Kiel, conferring the degree of doctor of medicine and surgery. As our statute allowed no recognition for a diploma conferring the combined degrees of Ph.D. and M.D., the Wurzburg diploma was returned to him, but we kept the Kiel document.

Q. D. S. V.
AVSPICIIS ET AVCTORITATE
AVGVSTISSIMI ET POTENTISSIMI PRINCIPIS
GVILELMI II
IMPERATORIS REGIS
DOMINI NOSTRI CLEMENTISSIMI
ACADEMIAE CHRISTIANAE ALBERTINAE KILIENSIS
GVILELMO SEELIG
RICHARDVS WERTH
OTTONEM TRETOW
EXHIBITA DISSERTATIONE QVAE INSCRIBITVR
Zwei Fälle von Luxatio lentis congenita
GRADVM IVRA PRIVILEGIA DOCTORIS MEDICINAE ET CHIRVRGIAE
DABAM KILIAE HOLSATORVM DIE XV MENSIS IANVARII ANNO MDCCCXCVI

Fig. 11.—Reproduction of the diploma of Dr. Otto Tretow from the University of Kiel. Note the special type, the large white impress seal and the dean's signature in Latin script.

AVSPICIIS ET AVCTORITATE
AVGVSTISSIMI ET POTENTISSIMI PRINCIPIS
GVILELMI II
IMPERATORIS REGIS
DOMINI NOSTRI CLEMENTISSIMI
ACADEMIAE CHRISTIANAE ALBERTINAE KILIENSIS
GVILELMO SEELIG
RICHARDVS WERTH
GOTTFRIED LEONHARD HAGENBURGER
EXHIBITA DISSERTATIONE QVAE INSCRIBITVR
Zwei Fälle von Luxatio lentis congenita
GRADVM IVRA PRIVILEGIA DOCTORIS MEDICINAE ET CHIRVRGIAE

Fig. 12.—Reproduction of forged Kiel diploma by G. L. Hagen Burger. Comparison shows it to be an exact duplicate of Dr. Otto Tretow's as to date and title of thesis, but the paper, type, printing, seal and signatures are entirely different. The signature of Professor Seelig, the rector, appears with that of Professor Werth, in German script and in the same handwriting, while it is customary for only the dean to sign medical diplomas, and then always in Latin script.

Owing to the general appearance of his credentials, which were poorly printed on inferior paper, our suspicions were aroused and special investigation made of his credentials. Through the kind assistance of Professor Helferich, dean of the medical department of the University of Kiel, Hon. Paul Gaston, United States consular agent of Kiel, and Professor Baumann, of the University of Wurzburg, we were able to establish the fact that both documents presented by this impostor were forgeries. That from Kiel, with the original from which it was copied, are here reproduced. The Colorado board naturally refused to grant him a license on such credentials and had him arraigned in the criminal court for offering false and forged evidence in applying for registration.

In addition to his general suavity, augmented by an unfailing nerve, Hagen Burger possessed an exceptional gift of enlisting the aid and sympathy of the gentler sex. This accomplishment he used to advantage in securing bail. It enabled him to deceive the wife of one of the most prominent and honored members of the Colorado bar. This gentleman was induced to go on Hagen Burger's bond temporarily, but his liability proved to be permanent. The state was confronted with the difficulty of securing a witness competent to identify the genuine signature of Professor Werth, and Hagen Burger became confident he would be acquitted by our failure to get such witnesses. The law's delay was irksome and his opportunity to gull the Denver public was suspended by the pending charge.

On July 1, 1902, he made the bold move of appearing before the board for examination to show educational qualification entitling him to a license. Under our statute we could not, even had we desired, refuse to examine him, notwithstanding the abundant documentary evidence in our possession of his bad moral character. In filling out the customary examination blank he carefully avoided mentioning having studied at Wurzburg and Kiel, but claimed to have attended lectures at Heidelberg, Vienna, Dresden, Harvard University, New York Post-Graduate and New York Polyclinic. No record in any of these cities or at any of these institutions can be found where he regularly matriculated, although he attended the clinics in some of these cities, which, without previous preparation, did him about as much good in an educational way as the country bumpkin who went through college by walking in at the front

door and out the back the same morning. He was carefully watched during his examination and his papers liberally graded to prevent accusation of bias on the part of the board. His knowledge on the subjects of examination, however, as evidenced by his vague and indefinite answers, was so superficial and wanting in essentials we were compelled to refuse to grant him a license. His answers to ten practical questions in anatomy showed an absolute ignorance of the subject. In his "stabbing" attempts to name the muscles attached to the greater trochanter of the femur he only succeeded in mentioning two, and those by the name used in comparative anatomy, which he evidently recalled from his veterinary course of instruction. When notified of his failure to pass the required examination he forthwith began mandamus proceedings in the district court to force us to grant him a license on the grounds that the board was guilty of prejudice and partiality. The real motive in taking the examination and in instituting the mandamus suit was soon made clear by a proposition from his attorney to drop the suit, provided the court would *nolle* the criminal complaint.

Meeting the deserved disappointment in this move, and realizing that the board had been successful in securing three graduates of Kiel as competent witnesses to testify to Professor Werth's signature, Hagen Burger informed his bondsmen that he had come to the conclusion that what he had believed to have been genuine examinations by the Kiel and Wurzburg authorities were probably fraudulent schemes imposed on him by a band of counterfeiters to secure the examination fees; further, that if he could be allowed to go to Germany he could establish the fact that he had been so victimized. How such a flimsy transparency could have gained credence in the mind of so able a jurist as his bondsman is beyond understanding. Nevertheless he allowed this scamp to start on his journey, ostensibly to Kiel. He failed to get further than the Atlantic coast, and soon the report came back that he was under the care of several of Gotham's most eminent neurologists for an attack of nervous prostration of such gravity that it was probable death would take his case from the jurisdiction of the Colorado courts. The Grim Reaper was not so merciful, however, and we next hear of this impious wretch in Boston, at which time, judging from the character of the following advertisement from the *Boston Medical and Surgical Journal*, he had completely recovered from his attack of nervous prostration:

> **PRIVATE COURSE ON PHYSICAL AND CLINICAL DIAGNOSIS.** Class limited to eight members. Six weeks individual instruction. Abundant Dispensary material. Price, $20.
>
> **COURSE ON OPERATIVE GYNECOLOGY.** six on the cadaver. Price, $25.
>
> Also preparation and quizzing for State Boards, Army, Navy, and Hospital Examinations.
>
> Dr. Med., G. L. HAGEN BURGER, F. R. C. P. (King.)
> 867 Beacon St., Boston.

At least his old-time effrontery and desire for unearned professional titles had reasserted themselves. Investigation at once revealed why he had become so bold. He had, by some means, succeeded in passing the Massachusetts medical board as an undergraduate, and thereby gained a legal standing in that state, as he had in Montana as a graduate of Kiel. With any knowledge of his cunning and fearlessness it is easy to understand how he succeeded in deceiving the Massachusetts board, but, so far as can be learned, they have taken no steps to remedy the error they made by granting this arch-medical impostor a license to practice medicine in the state and city whose very name is synonymous with higher education. Through some agency he has circulated in Denver the story that he was teaching medicine in one of Boston's best institutions, where his scholarly attainments are recognized, in contrast to the lack of appreciation exhibited by the profession in Colorado. In view of the man's history we think this story pretty hard on Boston—at least Colorado can stand it.

Later it was discovered that he had been admitted to membership in the Massachusetts State Medical Society as a graduate of Queen's College, Kingston, Ontario, 1904. Investigation revealed that when he was reported to be under treatment in New York City for a shattered nervous system he was attending lectures at Queen's College, where he had matriculated in the senior class as a graduate of a German university, probably Wurzburg. The dean of Queen's College states that he failed on his first examination, but was passed on the second. Their senate is now conducting an investigation of the case, in which those of their faculty in charge of matriculation and examination of candidates for graduation were most ingloriously duped, and to do other than to revoke the diploma granted Hagen Burger by their college would gain that institution a most unenviable reputation with the medical boards throughout the world.

In studying Hagen Burger's character and deeds one can not help being impressed with his apparent total disregard for the consequences of his wrongdoings. This is so manifest that his sanity can well be questioned. There is so much method in his madness, however, that he should be made to feel the heavy hand of the law. Owing to the expense of extradition, and a most apparent disinclination on the part of the state's attorney to push the Colorado case against this scoundrel, it has been impossible for our board to do anything more toward his prosecution. The mandamus case against the board was dismissed when he discovered it would not accomplish his purpose. When such a man can do what he has, in the way of deceiving medical boards and the public, can any one advocate the lack of necessity for the most stringent laws regulating the practice of medicine? Certainly not, and it behooves the people that they lend every effort to assist in the enforcement and betterment of such statutes.

CONCLUSION.

The natural conclusion to my description of these examples of depravity would be an exposition of the means by which the people may protect themselves from the ravages of such medical impostors. It is possible to eradicate them and render their further appearance in society an impossibility, would the public conscience but awake and give heed to their outrages and resort to the strong arm of the state to control the practice of medicine. The establishment by law of a few sensible and obvious regulations for the government of those who hold themselves out to the public as qualified to heal the sick would eliminate from among us this class of criminals now plundering the credulous and dealing death to the feeble and disconsolate who innocently fall into their murderous hands in their aimless search for health. Here there is a grave duty to perform, and it rests heavily on the shoulders of the educated men and women throughout this broad country.

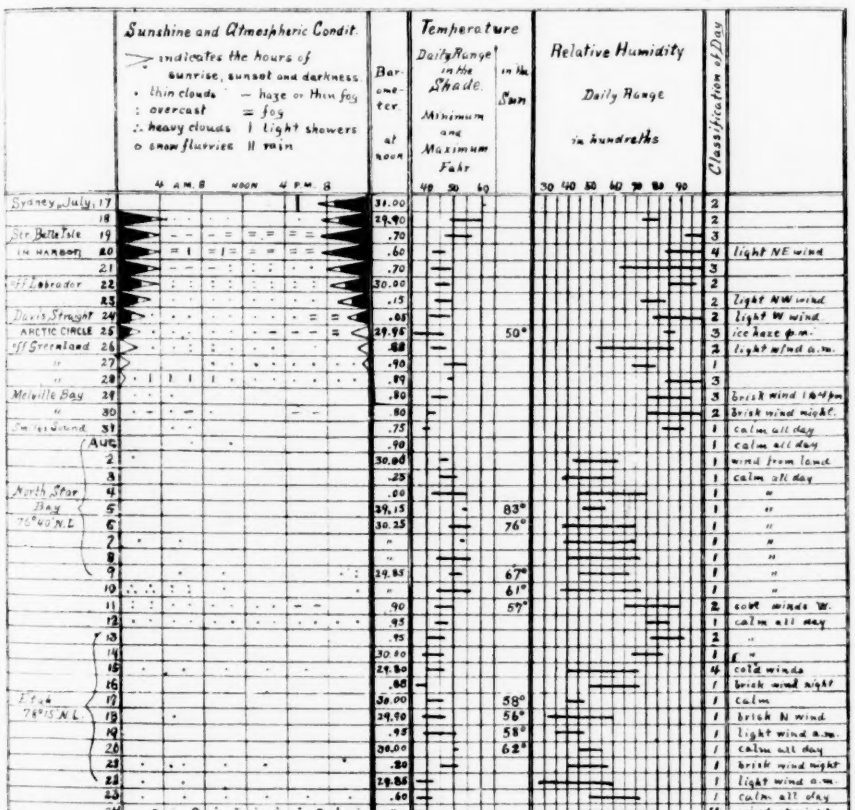
Specialism.—Dr. J. F. W. Whitbeck, in the *American Journal of Obstetrics*, says that specialism in medicine has been carried so far as to have almost caused the passing of the family physician, a condition which he deprecates.

THE THERAPEUTIC MERITS OF THE ARCTIC CLIMATE. METEOROLOGIC DATA OF A SUMMER CRUISE.

FREDERICK SOHON, M.D.
WASHINGTON, D. C.

Having already reported that the climate of the fjords of Greenland has claims to recognition as holding distinctive advantages for the treatment of certain classes of tuberculosis, I present the following account of summer conditions in these regions.

This article is not written with the thought that a summer's sojourn in these regions is, or can be, infallible as a curative measure or that it can be beneficial in all varieties of cases, but, as some localities are unhealthy while others hold elements which favor health, so also are certain conditions recognized as favoring improvement in pulmonary tuberculosis. These conditions may be utilized better by a sojourn at places where there is a full combination of health-inviting conditions.



Meteorologic data of a cruise from Sydney, Cape Breton, Nova Scotia, to 78 degrees N. Lat. in Greenland.

This data does not deal with the days and nights to which we are accustomed. Most of it should be regarded as showing the conditions during a succession of twenty-four-hour periods making up one single day several months long, for such is the arctic summer. This happens because the earth's axis is never perpendicular to the plane of its orbit. Thus, on June 21 the north pole is tilted about one-fourth toward the sun, whose beams fall directly on the near segment of the polar area and likewise pass over and beyond the pole even to the distal arc of the arctic circle. The rotation of the earth brings each point on the circle only to the edge of the shadow, and so no spot included within the circle passes out of the direct sunshine. In December, when the earth is on the opposite side of its orbit, the north pole leans away from the sun, and its rotation does not bring any spot in the polar area to face the sun, so these regions are then constantly in the shadow, or night. In passing the intervening quarters of the orbit the axis is inclined sideways from the sun, so that the borderline between light and shadow passes over the poles. Consequently, at the pole the sun rises but once and sets but once in each year; six months have sunshine and six months have none. Southward the months of continuous sunshine became shortened until, at the Arctic circle, the longest period through which it lasts is twenty-four hours.

In the transitions from season to season the course of events is as follows, the exact time of these changes at any one place depending on the latitude: About the first of September the sun begins to dip daily below the northern horizon at our usual midnight hour. There is no darkness, but the twilight of the sunset and the dawn merge one into the other. The sun's rising and setting occur each day more around to the eastward and westward; as it remains longer below the horizon the night begins to encroach on the day until on September 22 the two are of equal length. The sun continues its southern swing so that in December it comes above the horizon just east of south and drops out of sight again just west of south. The next day it does not show at all, and for a period the night is only relieved by a twilight at noon in the south.

At last, even this does not show and there is the continuous cold and cruel Arctic night of winter. In February the southern twilight shows again; later the sun appears for a few hours daily. The daylight lasts longer and longer as the sun in rising and setting works around the compass until in June it both rises and sets again to the northward. Then, after one short final dip below the horizon, it sets no more, but completes its circling each day in the heavens overhead.

In these months the darkness and cold of the night disappear in the warmth and life of daylight, extending without cessation through several months of time.

In the forepart of this long day the snow melts and the ice is broken up and carried away by the winds and tide. In July naught distinctive remains to impress on one that he is in Arctic regions, except the midnight sun and the glaciers which, pushed forward by the weight of ice in the perpetually frozen interior, throw off bergs of ice into the sea. All else is indicative of pleasant summer as the frozen life leaps into flowering vegetation under the stimulating sunshine.

The accompanying chart exhibits the meteorologic

conditions during such an Arctic summer. It is compiled from my records on the *S. S. Erik,* the auxiliary vessel of Commander Peary's present polar expedition, on which I went north for the third time to obtain certain information which perhaps may aid in making these lands accessible to the tuberculous. The vessel cruised according to her special purposes and there was no selection of places with regard to climatic conditions. The arctic waters were entered a month past the summer solstice, and so the chart but depicts conditions toward the close of the summer day.

The weather of the first week, in passing Newfoundland and Labrador, was worse than that usually met at this time of year in more southern waters. In contrast to it is the latter part of the return trip over the same route. This is in accordance with the well-known changes of fog in these regions.

It will be seen from the chart how a few days suffice to bring one into the regions of ceaseless sunshine, where for months a clear atmosphere is the rule and poor weather the exception. Starting earlier, one would have not one month, but two or even three months of this summer day.

The lines in the marginal brackets, during which days the vessel remained at anchor in the same place, are blank for the simple reason that hour after hour there was nothing to record—no haze, no fog, no clouds, no wind, no darkness, nothing but a succession of hours of brilliant sunshine. The first series was at 76.5 degrees north latitude in North Star Bay, a small basin bending in from Worstenholm Sound, eight miles from where the latter debouches into the open sea. The second series was at 78.5 degrees north, just within the entrance of Etah Fjord, which is protected by high hills of warm rock on either side. The blank spaces of these days show the difference between the atmospheric conditions on the sea and when but a few miles distant from the coast line.

The chart shows that away from the open sea there was nothing to obtund the sunshine. Not only is the life-giving stimulus of two days' sunshine thus forced into one, but the value of the light is enhanced, as is shown by the accompanying photographs. Figure 1 was taken at 12 p. m., a snapshot from the moving vessel, the diaphragm used being one proper for exposures in our latitudes during the afternoon, when the altitude of the sun is much greater. The nearest land and glaciers were 10 miles off.

Figure 2 is an example of the deceptive perspective created by the clear atmosphere under certain conditions of light. It is an instantaneous exposure with a one-fourth inch diaphragm taken at 9 a. m. The iceberg is about 1½ miles off, the glacier front about a half mile farther on and the receding gorge is over a mile in length, though to the eye, as well as in the photograph, all objects appeared to be about the same distance off.

Being previously aware of the peculiar actinic power of the arctic sunlight, a pin-hole camera, without a lens, was prepared as a test. In Washington this required a three-minute exposure. In northern Greenland, under what seemed to the eye to be equivalent conditions of light, one minute sufficed, and an exposure of two minutes blackened the film. Though the quantity of the light appeared to be the same, its quality was altered; there was an increase of the actinic rays, and it should be borne in mind that these rays are allied to those which influence metabolism. Much of this increase of actinic effect may be attributable to the clearness of the atmosphere; indeed, one may at times see plainly objects seventy-five or a hundred miles away, but other facts indicate that a further explanation must be sought.

The hypothesis is advanced that there is a different proportion of the component rays in the sunbeams as they approach the poles or approach the equator. In laboratory experimentation it is known that magnetic fields deflect some rays having the more rapid vibration periods, and the earth, acting as a magnetic field, may so influence the stream of approaching sun's rays that some will be deflected from their straight course and crowded together toward the Poles.

Fig. 1.—Snapshot of land ten miles distant, taken in Arctic regions at 12:00 p. m.

The prolonged absence of light and the recurring scarcity of food each winter would lead to the extinction of life in the far north were there not compensations given in this protracted light of extra potency. As it is, the vegetation does wonderfully well in its struggle for existence, the native animals are the largest of their kind, and countless fowl from the south select these places to hatch and rear their young. The Eskimo lose flesh and strength during the scarcities of the winter season, yet with the returning light they recuperate quickly, become again plethoric and, as do the animals, accumulate a surplus of fat to carry over into the next depressing winter.

In these lands there occurs naturally on a grand scale all that we may try to accomplish by artificial aids in treating slow diseases in which periods of retrogression are liable to occur. The management of the favorable stages in such diseases is directed toward regaining the vitality already consumed by the disease and also, when possible, providing a reserve of strength to safeguard against the next period of depression. In many parts of the Arctic such a stimulation is exhibited for the fourth part of each year in every event of life, and it may be made serviceable in increasing chances of regaining health.

Concerning the temperature records, it may be said that readings were taken at 8 a. m., noon, 4, 8 and 12 p. m., and the thermometers were shaded and sheltered twelve feet above the side of the vessel to eliminate, as far as possible, errors which might be caused by heat from the vessel. Check observations showed but minor alterations from this cause.

Air itself, that is, the mixture of oxygen and nitrogen, can not be heated; the sunlight in passing through warms only the admixture of other gases, watery vapor, dust, etc., and this determines the temperature of the atmosphere. As the Arctic air carries no dust and the percentage, i. e., the actual amount of contained moisture is small, it remains cool, even under the ceaseless sunshine. This gives it a bracing quality that is not felt as cold, for when out of doors one always experiences the temperatures given in the next column of the chart. These were taken at odd times when the sun could beat through the open door of the observatory directly on the instruments. These figures show why one wears neither overcoat nor gloves in the arctic summer and how one may sleep comfortably out of doors if so disposed. The Arctic summer is pleasant; it is not warm enough to enervate; it is just cool enough to freshen one and to invite an invigorating life.

The limited range of the daily fluctuations in temperature is accounted for by the heat which is radiated from the rocks being taken up by the miles of glacier ice. This thermostatic action insures uniformity of temperature; there are no decided barometric "lows" and storms are rare in summer.

In the bracketed series of days, the relative humidity, instead of remaining above the seventies, went as low as 28.08. The prevailing light winds are from the icy interior, and the atmosphere loses its surcharge of moisture as haze or fog along the coast. Had it been possible to take the observations a half-mile inland or even in some of the deeper penetrating fjords, the maxima of humidity would have been much less than those shown in the chart.

A comparison of the relative humidity at each of the places where the steamer remained for some days, with observations of the U. S. Weather Bureau during the same month of August at cities in different sections of our country, stands as shown in table.

The atmosphere of these places in Greenland during the stay of the vessel was never as moist as during the night and morning hours in each of these cities; it was never as dry as it became in three of them during the heat of the day; the range of variation was decidedly less, and the actual amount of contained moisture was smaller.

Fig. 2.—Snapshot of iceberg one-half mile distant, glacier one mile distant and gorge of a mile in length, showing deceptive perspective caused by clear atmosphere in Artic regions.

In this connection it may not be improper to consider the influence which sea air, which is the air of accessible parts of the Arctic, may have on the tuberculous. A comparison of the tuberculosis ratio of the army with that of the navy may be useful, as in both services the men are equally hearty on taking up the special life. The sailor sleeps in ship's quarters, does not get fresh food when at sea, his exposure is more severe, his sleep, duty and relaxation are set by watches instead of being naturally regulated by night and day, and when ashore

	Maximum Humidity.		Minimum Humidity.		Average Humidity.	
	8 a. m.	8 p. m.	8 a. m.	8 p. m.	8 a. m.	8 p. m.
New York	100	95	62	50	81.3	74.4
Washington	100	93	65	56	84.8	79.1
Los Angeles	100	80	52	23	88.1	62.1
Denver	90	90	41	18	66.1	37.1
Phoenix	88	50	43	15	59.0	25.2
North Star Bay	72	71	56	39	63.1	54.0
Etah	81	70	40	35	57.6	52.4

he is exposed to the infection even while breathing dusty air, to which he is unaccustomed. Considering the chances of the two, the sailor should succumb more often than the soldier, yet there is about an equal tuberculosis rate in both services. It seems, therefore, that a life near or on the sea has some influence in at least holding off tuberculosis infection, and so after infection sea air should be preferable if it can be had where there are no decided fluctuations of temperature or a high humidity to produce dampness, catarrhal conditions, etc. Such is the air of these lands. In all respects as to comfort it is preferable to the air of excessively dry regions.

On this short trip the crew, though engaged at habitual work and having the same food as on other cruises elsewhere, and probably not so good as at home, made an average gain of ten pounds in weight.

Concerning the classification of each day as to its suitability for semi-invalids, I consulted Prof. N. Senn, who also undertook the journey to complete his investigations of disease among primitive races by a study of the Eskimo of northern Greenland. As the vessel was covering some 200 miles each day, sometimes near land and sometimes at sea, we had to consider the general characteristics of the whole twenty-four hours, paying particular attention to the usual waking hours. When the weather was such that a delicate person would feel uncomfortable, or the day one which we could not consider beneficial, it was classed as unsuitable or No. 4. When most of the day was good, but with some hours of dampness or wind, generally in the night hours, it was classed as indifferent or No. 3. Days which had the full sunlight obtunded by clouds or were slightly overcast were called favorable or No. 2. These days were in reality fine days and only classed as No. 2 in order to reserve a class for the superexcellent days, in Group 1, whose perfection could not be equaled elsewhere. At each of the two harbors in the north there was a succession of these "excellent" days; this series, it may be said from past experience, had been repeating itself for two months and continued for some weeks after we left.

In the arctic there is a significant absence of affections of the respiratory tract. The following statements from leaders of experience may be interesting: General Greely, in referring to previously published statements of my own,[1] writes: "My experience regarding the contracting of colds, is practically the same as that mentioned in your article." Also, Mr. W. S. Champ says: "From my experience in the arctic I thoroughly agree with you in regard to the climatic advantages to be met with in the far north." When one is chilled in wet clothing the physiologic reaction may sometimes be manifested by relaxed tonicity and engorged nasal membranes, but this is fleeting; there are no pathologic conditions of catarrh and no fever; in short, one can not "take cold."

The arctic atmosphere holds no dust and is sterile so far as noxious germ life is concerned. Sparse molds and a few harmless bacteria exist, but the low temperature does not favor the development of pathogenic organisms, and the constant sunlight will forever keep these lands free of contamination by imported diseases.

The merits of this climate for the relief of chronic affections, particularly tuberculosis, are threefold:

First.—It holds absolutely nothing to add fuel to the existing flame. There is no dust to irritate tissues already struggling against a present mastery of the disease, no superadding of pus or other infections, no contracting of colds to invite a setback, nothing to depress vitality.

Second.—It holds every incentive to an increase of bodily vigor. Each and every chance and opportunity for a cure which is here sought for and obtained only singly or indifferently is there grouped together in full intensity without the necessary presence of any disadvantageous element.

Third.—As a result of this dual combination, a beginning tuberculous process may be checked in the shortest space of time, and not so much local damage will be done while waiting for the tide to turn and recovery to begin. This will lessen the chances of a new infection occurring after a cure.

Since I have broached this subject I have heard from no one acquainted with these lands who does not corroborate these views. Dr. F. S. Nash, surgeon, U. S. N., who has contributed a monograph on the arctic, in a personal letter, writes: "My position as one of the surgeons of the Greely Relief Expedition under Admiral Schley and afterward as surgeon of the Northern Alaska Exploring Company gave me excellent opportunities for observing the conditions of which you write. . . . most heartily indorse your statements." Mr. H. L. Bridgeman, a traveler of wide experience who has been to the places where the foregoing records were taken, considers them eminently suitable for a summer sojourn by consumptives.

Prof. N. Senn, the latest and most deeply observant of medical writers on the Arctic,[2] tritely summarizes the whole situation when he says that Nature there bends such efforts toward prophylaxis as to leave no need for therapeutics.

These lands can be reached without difficulty or danger; the pioneer work has been done and the way is open. Concerning this Commander Peary, who knows every detail of the Arctic in its pitiless moods of winter and its smiles of summer, wrote last August at Etah: "Answering your inquiry in regard to bringing a ship to this region for a summer voyage, I beg to state that the experience of nearly fourteen consecutive summers enables me to say that there is nothing more arduous in a voyage to this region than in the voyages which are now undertaken each year by tourists to the North Cape and Spitzbergen."

In conclusion, these northern lands hold distinctive conditions which are precious. Here is a field for a benevolent enterprise, with more surety of practical results than are to be had elsewhere. This field, reported on and indorsed by professional men and others who know whereof they speak, is worthy the attention of those who could begin such an undertaking.

1. American Medicine, vol. vii, No. xvii, April 23, 1904. Washington Medical Annals, vol. iii, No. v, Nov., 1904.

2. "Medical Affairs in the Heart of the Arctics," The Journal A. M. A., 1905, vol. xlv, pp. 1564, 1647.

INFANTILE PSEUDOLEUKEMIC ANEMIA

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This disease of infancy is one about which there has been a great deal of discussion among writers on diseases of the blood since von Jaksch, in 1889, first described the disease which now bears his name. Italian writers recognized and described peculiar forms of grave

anemia in children as far back as 1880, which they placed in an intermediate position between leukemia and Hodgkin's disease. Some authorities, Ebstein, Fischl and Cabot, do not recognize it as a clinical entity, but classify all such cases as pernicious anemia, leukemia, or secondary anemia with leucocytosis.

This controversy arises primarily from the fact that in young children there is a tendency for the blood in all forms of severe anemia to retrogress to an embryonal form: added to this, there is a much more active response to chemotactic influences; and a general tendency of the spleen to become hypertrophied in all cachectic diseases of infancy. The lack of detailed laboratory and postmortem reports in the cases described by the early writers, together with the wide variations in their blood findings, have added to the confusion and made it almost impossible to agree on a classification. In recent years there have been very few cases reported. Glöcknar, in 1898, described three cases which tally closely with the following one:*

Patient.—M. M., male, aged 15 months; one of twins; poor condition at birth, weight 4 pounds; had pertussis when 8 months old; twin brother died of marasmus; breast-fed 11 months; other foods, which were supplied by charitable institutions for a few weeks previous to admission, such as dextrinized barley and meat juices, were given irregularly. Parents extremely poor and ignorant; father alcoholic.

For the past month, the child had been gradually growing thinner, weaker, and more irritable. He was admitted to the Babies' Wards of the New York Postgraduate Hospital, May 29, 1905, weight 10 pounds 8 ounces, temperature 99.6, pulse 138, respiration 38. His general appearance was that of severe malnutrition, of the marasmic type, the anemia being a marked feature.

Examination.—(a) Head large, hair thin and dry, no bosses or craniotabes. Face showed marked loss of subcuticular fat, skin wrinkled and general wizened expression.

(b) Thorax was small; palpation and percussion negative; on auscultation no adventitious sounds were heard over either lung, and the breath sounds were of normal intensity, except over the upper lobes posteriorly, where the sounds were heard less distinctly. Apex beat was in fourth intercostal space, just outside the mammary line. Heart sounds regular, and of normal character.

(c) Abdomen was prominent; walls flaccid, due to loss of muscular tone; spleen was readily palpable, its anterior notched border extending two and one-half inches beyond the left costal margins. Lower border of liver was just palpable below the ribs.

(d) Extremities were very emaciated; muscles weak and flabby; epiphyseal cartilages not enlarged; feet and hands cold, indicating poor circulation.

(e) Glands in the axilla and groin were palpable, but soft and non-agglutinated.

Course of the Disease.—On admission the child was given the usual laxative, and placed on substitute feedings of dextrinized barley gruel, and beef juice. Later, cows' milk (modified) was added. The urine examination at this time gave the following results: Sp. gr. 1018; no albumin or sugar; urea 2 per cent. indican a trace; microscopically, a few epithelial elements.

Ten days after admission the patient developed symptoms of gastroenteritis. The stools became frequent and watery, of a greenish-yellow hue, and vomiting occurred, soon after taking food. The temperature, which till this time had been practically normal, suddenly rose to 104, with a corresponding increase in the pulse rate and respiration. These acute symptoms soon subsided; nevertheless, from this time on, the child failed steadily, in spite of everything that was done for him, the weekly weighings showing progressive losses of from two to eight ounces. At this time also the child developed a very troublesome cough, which particularly disturbed his rest at night. Physical examination indicated slight dullness on percussion over the posterior aspect of both apices, with diminished breath sounds and increased vocal resonance.

The temperature curve showed daily variations of one to three degrees, the maximum being in the evenings until within a few days of his death, on July 17, during which period it remained either normal, or subnormal. A second urine examination made a few days before his death gave, sp. gr. 1022; albumin, moderate trace; sugar, none; urea, 2.2 per cent; indican, marked trace; microscopically, a few hyalin and finely granular casts.

The first blood examination was ordered on June 14, to eliminate, if possible, pneumonia or sepsis, as a cause of the sudden elevation of temperature that occurred at that period, and then it was that the blood dyscrasia underlying all these previously mentioned clinical manifestations, was first discovered. As a result, the child was given minimum doses of Fowler's solution, t. i. d., for two days, after which, on account of an exacerbation of bowel trouble, the drug was discontinued. It is worthy of note, however, that the following weekly weighing showed a gain of ten ounces. Three other examinations of the blood were made at intervals, the last one being but three days previous to death. For purposes of comparison the different blood findings are tabulated, as follows:

TABLE OF BLOOD FINDINGS.

	June 14.	June 23.	July 3.	July 14.
Hemoglobin (Dare's), per cent.	38	35	31	30
Erythrocytes.	3,120,000	2,920,000	2,740,000	2,720,000
Leucocytes.	14,400	18,000	19,540	16,200
Erythroblasts.	2,800	2,700	2,660	17,600
Color Index	603	593	563	549
Differential count:				
A.—of W. B. C.				
Polymorphonuclear, per cent	18	20	36	21
Small mononuclear, per cent.	28	27	19	31
Large mononuclear, per cent.	42	41	28	35
Transitional, per cent.	1	1	1	1
Eosinophile, per cent.	2	3	6	3
Myelocytes, per cent.	9	8	10	9
	100	100	100	100
B.—of nucleated R. B. C.				
Normoblasts, per cent.	6	8	36	43
Megaloblasts, per cent.	94	92	54	57
	100	100	100	100

The above percentages of the different forms of white blood corpuscles were obtained by finding the relative frequency with which each of them occurred in a count of 500 or more leucocytes, in a stained slide-preparation. The number of nucleated red cells to the cubic millimeter was determined by first counting all the nucleated elements found in the Turek counting chamber, and then deducting the number that represented the percentage of erythroblasts as found in a differential count of both varieties of nucleated blood cells.

From a study of the table the following facts will be noted: (1) A severe, thorough, not extreme, reduction in the red blood cells; (2) a constant, uniform, and well-marked leucocytosis, in which the mononuclears predominate; (3) a great number of nucleated erythrocytes, particularly of the megaloblastic variety. The tremendous increase of both varieties noted in the last count may be ascribed to an acute exacerbation of the blood changes preceding death; (4) a low color index; (5) constant presence of myelocytes—neutrophilic, basophilic and eosinophilic.

There were considerable variations in both the size, and staining of the erythrocytes. Poikilocytosis was marked, and karyokinetic figures were not infrequent. The accompanying illustration graphically represents a composite picture of the cellular changes.

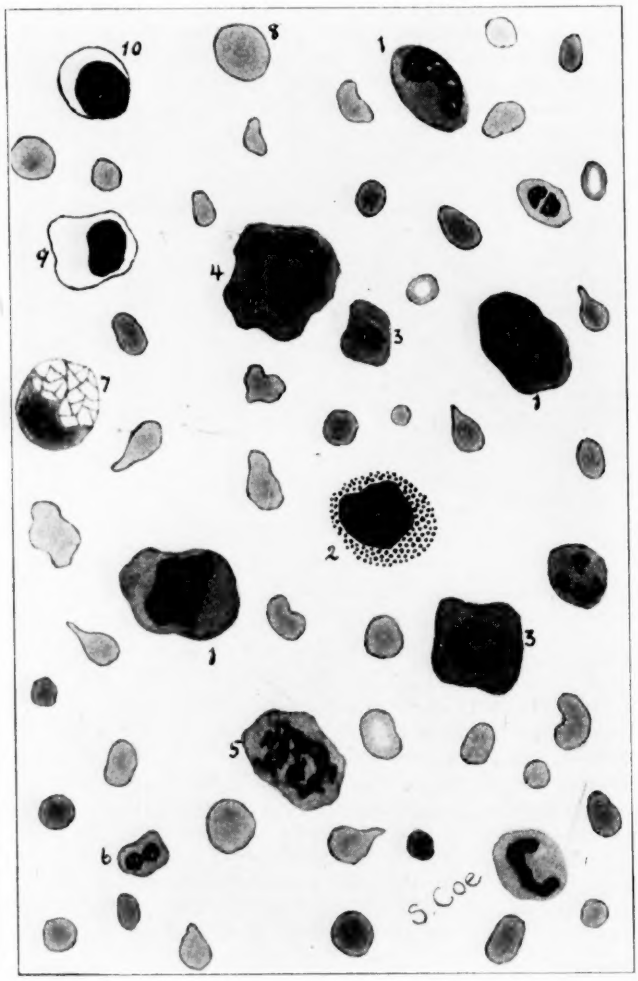
Postmortem Examination.—All the tissues and organs examined had one characteristic in common, extreme pallor and bloodlessness.

Spleen.—Greatly enlarged in all its dimensions, weight 91 gms., slaty-blue in color, very firm consistency. The cut surface did not bulge and the Malpighian corpuscles were indistinct. Microscopically the capsule showed a slight uniform thickening. The trabeculæ were markedly hypertrophic,

* This case is reported by kind permission of Professor Caillé, attending physician to Baby Wards, New York Post-Graduate Hospital, under whose care the patient was.

the fibrous elements being predominant; there were present, however, a few elongated, darkly stained nuclei, and a moderate amount of degenerated blood-coloring matter, between the fibers. The pulp reticulum was also greatly increased. In the pulp itself four changes were noted: (1) The presence of a large number of round cells, with oval nuclei, and a varying amount of protoplasm; (2) a great increase in eosinophilic cells, containing usually one or two dark-staining nuclei; (3) a deposit of degenerated, amorphous blood pigment in the intercellular spaces; (4) a great diminution in the usual number of erythrocytes. The Malpighian corpuscles did not appear to be affected to any appreciable degree.

The *liver*,—was slightly increased in size, and normal in consistency; acini markings were indistinct; cut surface was smooth and very pale. Microscopically there was no deposit of iron pigment in the liver cells; there were no collections



Representation of the blood in infantile pseudoleukemic anemia, drawn from an eosin-hematoxylin preparation. 1. Myelocyte. 2. Eosinophilic myelocyte. 3. Megaloblast. 4. Chromatophilic megaloblast. 5. Karyokinetic megaloblast. 6. Normoblast. 7. Myelocytic hydrops of nucleus. 8. Megalocyte. 9. Large mononuclear leucocyte. 10. Small mononuclear leucocyte.

of round cells between them; a few eosinophile cells were present and degenerated hemoglobin was found in the intercellular spaces between the liver columns.

The *kidneys*,—the capsule was non-adherent; cut surface was pale and cloudy. Microscopically there was a cloudy swelling of the cells in the glomeruli and convoluted tubules. On looking closely, brown, amorphous granules of blood pigment were noted in the perivascular spaces.

The *stomach*,—was of normal size and texture. Mucosa, although very pale, showed no evidences of any hemorrhagic condition. Microscopically there was nothing of pathologic interest, except for the presence of a slight amount of amorphous pigment in the intercellular spaces. The other abdominal organs—the intestines and pancreas—were not examined microscopically, as they showed no gross lesion.

Of the *thoracic viscera*, only the lungs were examined microscopically. The thymus was not enlarged. The heart was contracted, of normal size and consistency, but markedly anemic.

The *lungs*,—a strip of hypostatic congestion extended along the posterior aspect of both lungs, while at the apices there were small portions of non-aërated parenchyma. Microscopically, these portions of lung tissue were found to be areas of bronchopneumonia, with marked congestion of the small arteries and a desquamation of the alveolar-bronchial epithelium; the nucleated erythrocytes in the lumina of these vessels were very numerous. There was also a remarkable proliferation of the fibrous tissue in the trabeculæ, and in the adventitia of the vessels, which extended into the alveolar framework. As in all other organs examined, there was noted a deposit of degenerated blood pigment in the intercellular spaces, especially in the congested areas. The pleura was slightly thickened over the sight of the pulmonary involvement, but showed no evidences of acute inflammatory changes.

Regarding the important causative factors in this disease, although much has been written of a speculative nature since von Jaksch's publication, we are still no nearer a solution of this problem. Rickets, chronic intestinal catarrh, syphilis and tuberculosis, have each played a part in certain of the cases reported, most commonly the first and second of these. An infectious origin was claimed by certain writers as early as 1880, but it has never gained wide acceptance.

The three conditions of the blood from which this disease must be differentiated are pernicious anemia, leukemia and secondary anemia with leucocytosis. The diagnosis rests on three factors (a) the clinical history, (b) morphology of the blood, (c) the pathologic changes in the viscera (Ewing).

Clinically, the points to be considered are the age of the patient, usually 1 to 4 years; the presence of rachitis or chronic intestinal catarrh, the enlarged spleen, the absence of any other assignable cause for leucocytosis, and the relatively favorable prognosis in this form of anemia.

In regard to the blood changes, the essential features are grave anemia, uniform and persistent leucocytosis, and lowered hemoglobin ratio. The erythrocytes are always markedly reduced in number, but seldom to the extent that occurs in pernicious anemia; the variation in size, shape and staining and the number of nucleated cells are marked, but not distinctive features in anemia infantum. The leucocytosis usually varies from 20,000 to 50,000, although much higher counts have been recorded. These latter cases, especially when associated with enlarged liver, must always be accepted with a great deal of hesitancy, unless the diagnosis be confirmed by the postmortem findings, being otherwise often indistinguishable from leukemia. In most of the cases in which differential counts have been made, the lymphocytes have predominated, and in some instances formed as high as 80 per cent. of the total number of white blood cells. The presence of myelocytes is a frequent though not absolutely essential feature; they do not, however, approach the proportions found in the myelogenous form of leukemia, the highest count recorded being 10 per cent., by Luzet.

As regards the tissue changes, their significance has not as yet been accurately determined. From an anatomic standpoint, however, they are sufficiently characteristic to justify the separate classification of these cases. The absence of iron deposits in the liver cells and of the characteristic lymphoid nodules in the vari-

ous organs is quite sufficient to preclude the placing of them under the heads of either of the two forms of primary blood dyscrasia mentioned above—pernicious anemia or leukemia.

While considering differential diagnosis, attention is drawn to the great similarity in the general appearances and clinical manifestations of these cases, to the ordinary severer forms of malnutrition. So striking is this outward resemblance that it is not surprising that there may be no suspicion of the real trouble, previous to the examination of the blood. Hence, in my opinion, it is highly important, both from the standpoint of the child and in the interests of scientific medicine, that, whenever possible, a complete and systematic blood examination should be made in every obscure and obstinate case of malnutrition, particularly if the physical signs indicate enlargement of the spleen.

The prognosis depends largely on two factors—the early diagnosis and the ability to procure proper treatment. In neglected cases the outlook is grave indeed.

The treatment, as in nearly every other disease of childhood, resolves itself primarily into a question of improving the hygienic surroundings of the patient, and carefully regulating the diet to suit the condition of the stomach and intestines. There is, however, one drug—arsenic—which, if not a specific, has been recommended most highly by the different writers on this subject. It should be administered in the form of Fowler's solution, starting with a minimum dose and gradually increasing to the limit of toleration.

THE LOCALIZATION OF THE HIGHER PSYCHIC FUNCTIONS,

WITH SPECIAL REFERENCE TO THE PREFRONTAL LOBE.*

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Cerebral localization had several epochs during the nineteenth century. At its dawn the views of Gall had awakened interest not only in the scientific world, but in all the European centers of population. Gall had boldly advanced the idea that the brain was not only subdivided into centers of special function, but that these were indicated on the outside of the head by peculiar prominences and conformations. An essential element of his phrenology was the existence of cranial salients, recognizable by the skilled fingers of the examiner, and constituting the ectal correlatives of ental physiologic centers in the brain substance. The bumps of the phrenologist represented gyres and subgyres, in which resided, as in the compartments of an elaborately arranged house, the habitants of the soul or mind.

Gall, who was a worker as well as theorizer, eventually lost himself in mazes of his own creation, but he will at least be remembered as one who fastened the eyes of the world on the truth that all parts of the brain do not act together for a single purpose, and that a single part of the brain is not sufficient for all the functions of the mind.

For nearly three-quarters of a century the advances made in our knowledge of cerebral localization were limited. The one great discovery before 1870 was that of the existence of a center for speech in the hinder part of the left third frontal convolution—the center of Broca.

As the result of the impetus given by Hughlings Jackson, in his suggestion that certain small areas of the cerebral cortex were representative of particular movements, the researches of Hitzig and Fritsch, of Ferrier, Charcot and others were given to the world between 1870 and 1880, and the existence of a cortical motor zone with many subareas or centers was soon almost universally recognized. Before long, visual, auditory and other sensory phenomena were found to have their cortical representation.

For nearly a quarter of a century attention was concentrated on the discovery of separate cortical centers, until Flechsig (1893), through his embryologic researches, demonstrated the importance of recognizing not only primordial centers of sense and of movement, but also the existence of cerebral association areas concerned with intermediate and higher psychic functions. Since the period inaugurated by Flechsig, the subject has evolved in two directions: 1, In the direction of a more exact delimitation of areas and centers concerned with primary functions; 2, in that of the recognition of subdivisions of Flechsig's posterior association area, the concrete concept area or the concrete memory field. The visual and auditory subdivisions of this concrete memory field have in particular received some exact subdivision through clinicopathologic, morphologic, anatomic and physiologic research. The views of the authors in regard to cortical localization in general have been indicated in diagrammatic schemes published by one of us.[1] It will be observed in studying these schemes that not only are lower and higher areas of vision and audition indicated, but also special areas for cutaneous and muscular sensibility and stereognostic conception.

Each sensory zone has contiguous to it a motor area or center, the main motor region being that which is closely related topographically, as it is functionally, to the areas of cutaneous and muscular sensibility.

We shall not go into any detailed consideration of these zones, subareas and centers. This glance at the history and the present status of cerebral localization is given in order to lead up to the particular subject of the present paper, which is concerned with the centers of the highest psychic functions. We hold to the view that the highest mental faculties or functions have their material representation in the prefrontal lobes of the brain, and especially in the left prefrontal lobe. Our concern will be to give the general data and reasons for this belief, supplementing the paper with a report of a case of tumor of the left prefrontal lobe recently observed.

Gall and his followers made an elaborate subdivision of the faculties of the mind as understood in their time. One mistake made by them was that they did not recognize the essential difference between a fundamental faculty or function of the brain and certain cerebral side

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

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1. Mills, C. K.: "The Physiologic Areas and Centers of the Cerebral Cortex of Man, with New Diagrammatic Schemes," Univ. of Penna. Med. Bulletin, May, 1904. Also: "Subdivisions of the Concrete Concept Area of the Human Cerebrum," Medical News, Nov. 5, 1905. Also: Mills, C. K. and Frazier, C. H.: "The Motor Area of the Human Cerebrum, Its Position and Subdivisions, with Some Discussion of the Surgery of this Area," Univ. of Penna. Med. Bulletin, July-August, 1905.

attributes or epiphenomena. The ability to attend, to will, to judge, to compare, to reason and to exercise the imagination are fundamental psychic functions; the exhibition by an individual of pride, of vanity, of friendship, of combativeness, of piety, of filial love, of sexual passion or similar propensities, is not due to the operation of any single mental faculty or function. The former are the vocations, the latter the avocations of the mind. The former are represented by special centers associated by special tracts; the latter result from the action of one or several or many of the regions of the brain.

The evidence afforded by studies in human and comparative morphology and anatomy of the cerebral surface in favor of the view that the prefrontal lobe, and especially the left prefrontal lobe, is the seat of the highest mental faculties, is of much value. Already a considerable number of the brains of notable men presenting special fissural and gyral arrangement and development of the prefrontal region indicative of high or unusual endowment have been put on record. Reference need only be made to the classical cases of Gauss, Helmholtz and Grote and to the more recent studies of E. A. Spitzka on the brains of the two Seguins, Cope, Harrison Allen, Major Powell and others. If the anatomic and morphologic characteristics of such brains are placed side by side with those of criminals, paranoiacs, negroes and other human beings of low individual or racial development (as studied by Dr. Mills and others), the psychophysiologic importance of the prefrontal region becomes apparent. It might be remarked in passing that morphologic and anatomic studies do not always seem to give to the left prefrontal lobe the preponderance in higher mentality attributed to it by some. Spitzka, for instance, found in the brain of Major Powell a preponderant development of the mesal surface of the right frontal lobe. In studies of this kind a comparison should always carefully be made between the fissural and gyral characteristics of the prefrontal and parieto-temporo-occipital areas. A superior development of the latter is not always accompanied by an equally superior pattern of the former. In rare cases the former may largely outclass the latter.

Morphologic studies of the brains of imbeciles, such as have been made by Wilmarth and others, are corroborative of the view of the higher psychic functions of the prefrontal region. These brains are, as a rule, characterized by unusual simplicity in fissural and gyral arrangement.

The embryologic researches of Flechsig and the histologic investigations of Campbell show, among other things, the absence of projection cells and fibers in this portion of the brain. The latter speaks of the prefrontal region as the very last pallium to appear in the progress of phylogenesis. We may accept this statement and regard it as in accord with our views of the functions of this part of the brain. The last and the least organized portion of the nervous system is the most highly organized and most specially endowed.

Gross and microscopic examinations of the brains of general paretics support in some degree the thesis that the prefrontal portion of the cerebrum is the seat of its highest functions. It is probable that careful pathologic investigation of the brains in cases of dementia præcox will afford similar evidence.

Presuming that the prefrontal lobe is especially concerned with the highest intellectual functions, the question of whether or not this region is divided into subareas and centers is one which is naturally suggested. In such a study we have not to guide us comparatively coarse and easily differentiated phenomena-like movements and disorders of cutaneous sensibility, or of the special senses.

The higher psychic faculties themselves are indeed usually so interblended in expression as to make a study of their relative maintenance, loss or increase in particular individuals, a matter requiring trained powers of observation and analysis, such as are not often possessed, or at least exercised, by those recording cases of disease, arrest of development or unusual endowment. It is possible that the clue to the subdivisions of the highest psychic region may be found by a consideration of the position and relations of the centers of known functions contiguous to the prefrontal lobe. Intermediate between this lobe and the area recognized as motor are situated centers concerned with speech and with writing. Broca's center is situated just anterior to the centers for articulation, enunciation and phonation, the subdivisions of the so-called face area. Speech is the chief instrument employed in reasoning and the psychic centers of ratiocination should be topographically closely related in position to the center of Broca. Writing administers to exactness in thinking and the centers of comparison and judgment may have their highest development contiguous to the graphic center. While in the main the motor centers, for the face, arm, trunk and leg are limited to the precentral convolution, the centers for movements of the head and eyes, and especially for movements of the eyes alone, are thrust toward and into the prefrontal lobe. Attention and volition have their most marked physical expression through vision and position of the head, and if centers for these mental faculties or processes are differentiated their most probable situation is in parts contiguous to centers for movements of the eyes and head.

One of the greatest difficulties of proving the localization of the highest intellectual processes has arisen from the fact that physicians, even those trained in neurology and psychiatry, frequently fail to note the mental symptoms carefully or describe them in such an uncertain manner as to make the records of little value. It is surprising, considering the richness and profusion of the clinicopathologic contributions to cerebral localization during the last two or three decades, how few of these have any notable value regarding the higher psychic functions. In our own language, the contributions of Phelps[2] are of especial value. An elaborate study of personal and other cases is made by Phelps, who arrives at the conclusion that the left prefrontal lobe is the seat of the highest mental processes. He says:

> The large number of cases cited, with the analysis of their symptoms and lesions, are probably sufficient in themselves to form a basis for conclusions. They represent the personal observation and record of 800 cases of intracranial traumatism, of which more than 300 were subjected to either operative or postmortem inspection. Excluding those cases in which death had been preceded by primary and permanent unconsciousness, they were all germane to the present inquiry as showing either the presence of left frontal lesion where mental symptoms had been noted, or the absence of such symptoms where the lesion was situated in any other region of the brain.

Besides the series of traumatic cases compiled by Phelps, other collections of cases of prefrontal lesion have from time to time been published, as well as a con-

2. Phelps, Charles, New York Med. Jour., Nov. 10, 1894, to Jan. 12, 1895; "Traumatic Injuries of the Brain," etc., New York, 1897, 1900; Amer. Jour. of the Med. Sci., April, 1902.

siderable number of isolated cases either due to disease or injury. Some of these, like the crow-bar case, have so often been recalled that they are now well known to the profession at large. The inferences drawn from both the individual cases and the compilations have been conflicting, some holding that they prove nothing as regards the functions of this portion of the brain or only indicate that it is physiologically negative; on the other hand, a very considerable number of cases of lesions situated elsewhere than in the prefrontal lobes and giving symptoms indicative of the involvement of the higher psychic faculties, have been recorded. We believe, however, that the comparatively conflicting cases can be satisfactorily explained. In many instances the individuals whose cases are reported have been of a relatively low intellectual status, and as already intimated, physicians in general are not well equipped to put on record psychic symptoms in detail. Frequently the mental condition and symptoms, which are due to the irritative or distant effects of a cerebral lesion, especially when this is a tumor are not taken into account by the reporter. We believe that if each case of prefrontal disease and especially destructive disease of the left prefrontal lobe, is carefully studied it will be found that mental symptoms of a special character can always be recognized, and that these will be in the domain of the higher psychic activities.

E. Müller, in 1902, published three exhaustive papers on the frontal lobe, his chief object in these contributions being to present the question of the psychic functions of this portion of the brain. His frontal lobe practically coincides with the prefrontal lobe of the writer's—that portion of the brain in advance of the generally accepted motor region and of the graphic and motor speech centers. While he gives details of only one case of his own, he has collected from the literature no less than 164 cases of lesion or disturbance of this portion of the brain, these including tumors, concussion, injuries and other lesions.[3]

We have only space in this paper to give his most important conclusions, with brief references to one or two points of special interest in his studies, which were not only clinicopathologic, but included to some extent a consideration of facts of physiology, morphology and psychiatry. He asserts, as the result of his studies, that tumors of the frontal lobe need not always cause disturbance of the higher psychic functions, but admits that they do this frequently. He holds that psychic disorders of various sort may result from tumors situated in any portion of the brain. He believes, further, that the disorders of the higher intellectual functions which are so frequently noted in prefrontal lesions, are due, especially in the case of tumors, to the fact that these being in a region latent as regards physical symptoms, the cases remain a longer time under observation, and hence the mental disorders are more frequently studied. He contends that psychic symptoms in cases of brain tumor do not occur alone, but always in association with other symptoms. He does not believe that prefrontal tumors necessarily produce psychic symptoms of a special kind. He does not believe that morbid wittiness (Witzelsucht), which has been advanced by some German writers as a symptom especially depending on disease of the frontal lobes, is to be attributed to lesion or disturbance of this region, his analysis of cases seeming to show that it may occur from lesions in various parts of the brain. In 22 cases of tumors or other lesions involving both frontal lobes cited by him, this symptom was absent. We might remark in passing that although we have seen many cases of brain tumor, a number reaching into the hundreds, this symptom has been extremely rare in our experience.

Schuster,[4] also in 1902, contributed a paper based on a study of no less than 775 cases of tumor. He found from his analysis that tumors of the callosum always gave mental symptoms; next in order came tumors of the frontal lobes, which gave the same symptoms in 80 per cent. of the cases; tumors of the temporal, parietal and occipital lobes gave psychic disorders in from 54 to 66 per cent., while tumors of the base gave these symptoms in only 25 per cent., and cerebellar tumors in 35 per cent.

Both Müller and Schuster agree that in the majority of instances the prevailing psychic disorders are disturbances of the sensorium, of orientation and of consciousness, the last showing themselves chiefly in hebetude or stupor.

Von Monakow,[5] in a paper published in 1904, refers to the statistics of Müller, Schuster and others, and discusses the subject from a physiologic point of view, concluding that the physiologic evidence is insufficient to prove that the psychic functions are especially located in the prefrontal portion of the brain. He believes that psychic disturbance may occur from tumors situated anywhere in the cranial cavity. He also agrees with Müller and Schuster that tumors of the prefrontal area need not cause disturbance of the higher psychic functions .

The papers of Müller, Schuster and Von Monakow, like many others of less elaboration written on this subject, are defective in their discussion of the subject, in that clear distinctions are not made as to the character of the psychic disturbances caused by tumors located in various parts of the brain. The chief sources of fallacy would seem to be (1) that sufficient stress is not laid on the fact that owing to the painful and exhausting character of brain tumors, mental disturbances in the broad sense may occur because of the irritation and exhaustion produced by these lesions; (2) it is not clearly brought out that tumors of the posterior association area or concrete memory field of the brain will necessarily cause some disturbances of mentality, especially those in the domain of orientation and in the sensorial field; (3) that tumors anywhere situated may cause mental disorders simply through the disturbance or impairment of association which must result; (4) sufficiently close attention is not paid to the particular point that the psychic disorders caused by prefrontal tumors are especially those of the higher intellectual functions, and that in many of the cases studied the normal mental status of the individual is not properly taken into account; and (5) the fact is not recognized that in tumors situated in one of the prefrontal regions, especially in the right, the individual's intellectual faculties may be largely preserved because of the integrity of the corresponding region of the other side.

We can only arrive at satisfactory conclusions by the closest and most thorough clinicopathologic or clinicosurgical studies of prefrontal tumors.

The following case recently observed is one of unusual interest because of the strict limitation of the lesion to the prefrontal lobe as defined in this paper.

3. Deutsche Zeitschrift für Nervenheilkunde, vol. 21, 22, 1902; Allgemeine Zeitschrift für Psychiatrie, vol. 59, 1902.

4. Schuster, Psychische Storungen bei Hirntumoren, Stuttgart, 1902.

5. Von Monakow, Ergebnisse der Physiologie, vol. 3, No. 2, 1904.

namely, that part of the cerebral hemisphere which is situated laterally and mesally cephalad of a line drawn vertically through the pre-Sylvian fissure, and on the inferior surface of the brain is cephalad of the Sylvian fossa:

X. Y., 71 years old, was a well-known physician who had, up to within a few months of his death, pursued his profession successfully, at the same time taking a moderate part in the management of other business interests.

About two months before his death he was first seen by Dr. Mills, who had been consulted by his son regarding him some weeks previously. His symptoms at this time were all mental, being chiefly exhibited in defects of memory and judgment.

A careful examination was not made at this time, as it was the desire of his family not to have him recognize the fact that his condition was being made the subject of investigation. He had not any paralytic or sensory symptoms, however, and, so far as could be determined by the examination that was made, none in the domain of his special senses. Unfortunately, an ophthalmoscopic examination was not made. His symptoms appeared at the time to correspond to those frequently seen in cases of cerebral arteriosclerosis.

He had frequently put his hand to the left side of his head, as if suffering from uncomfortable sensations, but he did not call attention to any pain or distress in his head by speaking of it.

Shortly after this he was noticed to have a shuffling gait, and later he was unable to convey food to his mouth with any certainty. Soon after he began to have muscular tremors in his hands and legs, much like those seen in paralysis agitans. At first they were on the left side only, but toward the end involved the right side also. They were at first partially under control, and by an effort of will he could stop them; later he could not, and they occurred also during sleep.

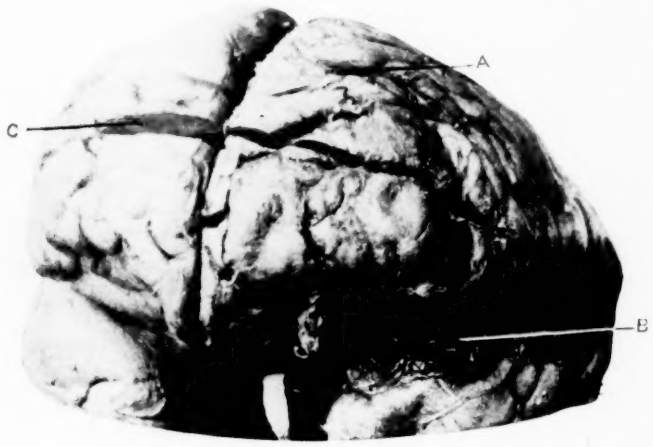

Fig. 1.—Photograph showing the tumor as viewed in front, laterally and at the base. *a*, upper limit of the tumor; *b*, recent hemorrhage; *c*, the line of the longitudinal section through the cerebrum.

About six weeks before his death he had occasional turns of vomiting for about a week; a week later one or two more. These were the only attacks of vomiting he had during the whole course of his disease.

About two weeks before his death the patient suddenly became unconscious, this condition lasting for three days. He then rallied and could be aroused during part of the day and answer questions. The comatose condition gradually returned and he died very quietly with no convulsions or any unusual symptoms.

At our request the patient's son, an unusually observant and well-equipped physician, sent us a description of his symptoms from the time when they were first noted by members of his family. The patient died April 19, 1905. Attention was not particularly directed to any evidence of mental failure until December, 1904, although his son stated that on looking back he felt sure it began much earlier. In the summer of 1903 he seemed to have lost, to some extent, his grasp as a physician, he having at this period taken charge of his son's practice during the latter's absence on a vacation.

In the summer and fall of 1904 it was observed that he was no longer attentive to the care of his house, he having formerly been particular in this respect. At the table he became more careless, as in carving and carrying food to his mouth. He was indifferent as to what occurred, as when he dropped food on the table or in his lap.

His loss of memory seemed to develop rather suddenly about Dec. 1, 1904. Memory for recent events failed first; he soon forgot his recent patients and would ride about hunting those he had not seen for years. He even made charges in his books to patients who had been dead for years. He never seemed to lose himself, and in his drives about the country within a month of his death he always seemed to know where he was.

A gradual loss of judgment and comparison had occurred after the fall of 1904. When, for instance, his son consulted him about some business matters which he had known all about better than any one else he answered that he did not know and that so and so had better he consulted. A slightly

Fig. 2.—Longitudinal section of the cerebrum showing the extent of the tumor in section and also the position and extent of the recent hemorrhage posterior to the tumor; *a*, the tumor; *b*, the hemorrhage.

delusional state developed. This was mostly with reference to medical work. He had an idea that he was very busy, that he was sent for to various places, and he would hurry around to do what he thought was his work. He would stop at all sorts of places, hunting the persons who were sick. In the evening he would try to tell where he had been, but got hopelessly confused. Once he thought for a number of evenings in succession that he had theater tickets and must get ready to go, although scarcely in his life had he been to the theater. On account of his wife's deafness he was in the habit of giving her verbal reports of sermons. During the few months preceding the development of marked symptoms she noticed his accounts were becoming confused, and that he could not give a clear idea of what was said.

Another quite early symptom was change in disposition. He would sit at meals without saying anything, and became exceedingly mild and gentle. His ordinary greeting became unnaturally cordial.

No marked change occurred in writing until about December, 1904, when it became decidedly more careless. Spelling was not affected, although he frequently used a wrong word even a month or two earlier. During December his letters became confused and careless. He would start with an idea and then

become bewildered, and would repeat the same words and phrases several times.

The necropsy was made about twenty-four hours after death. As the body had been carefully injected with formalin, on removing the calvarium the brain in general was found to be in an unusually good state of preservation. On attempting to remove the brain from the skull the anterior pole of the left hemisphere was found to be adherent to the skull, necessitating careful dissection of the adhesions at this point. A small quantity of blood was seen oozing from the left Sylvian fissure at its anterior inferior extremity. It was evident while the brain was still in position that an abnormal mass was present in the left prefrontal region, the brain substance, the membranes and the lesion present not being separable.

The lesion was found to be a prefrontal tumor, which was fleshy in color, hard in consistence and well-defined from the surrounding tissue. Studied from its lateral aspect, the tumor was absolutely prefrontal, occupying the anterior third of the first frontal gyre, the anterior fourth of the second and slightly less of the third. It occupied practically the entire orbital surface and on the mesal aspect the entire area cephalad and ventral of the knee of the callosum; it also involved the collosum itself, the mass projecting toward the other hemisphere. A good idea of the lateral and the anterior position of the tumor is given by the photograph (Fig. 1).

A horizontal section of the entire brain made just below the level of the callosum showed that the growth involved the entire subcortex and cortex of the first and second frontal gyres, but only the orbital portion of the cortex of the third frontal, laterally the outskirts of the growth only reaching to within three-eighths of an inch of the cortex. The tumor extended backward so as to involve the anterior extremities of the caudatum and internal capsule, as shown in the photograph (Fig. 2).

Caudad of the tumor in the Sylvian fissure, a fresh hemorrhage was found, this having destroyed in large part the insula. The nerve cells of the cortex, as shown by the Betz cells in the paracentral lobule, were in a fair state of preservation. Here and there was found a diseased cell, but these were not numerous. In these cells the nuclei were found in the periphery and the chromophylic elements stained diffusely. The pia was of normal thickness. The arteries throughout the entire brain were markedly sclerotic; in fact, they were so much so that at the base of the brain the anterior cerebral arteries pressed upon the optic chiasm, causing the optic nerve on each side to assume a semi-lunar shape. On cross-section the optic nerves showed a slight amount of degeneration. Sections taken from different parts of the cortex and from the oblongata did not show any alterations.

DISCUSSION.

DR. H. A. TOMLINSON, St. Peter, Minn., said that from his own experience in the study of the brains of the defective and demented he could confirm the conclusions presented in the paper. In the defective the most constant variation has been toward imperfect development of the frontal convolutions and the tendency toward perpendicular fissuration, while in the demented there is the shrinkage of the frontal lobes anteroposteriorly and the atrophy of the frontal lobes in front of the precentral fissure. It seems to him that the preponderance of the left prefrontal lobe in the intellectual functions is due to the same causes that influence the motor convolutions. The larger number of impulses that have to be related, inhibited or directed come from the left side of the brain, and especially from the centers of expression on that side. In left-handed persons the converse of this relation will probably be found to be very nearly constant, but not entirely so, because left-handed people are apt to be ambidextrous. Microscopically, the most marked degenerative changes are found in these same areas in dementia and in the associated areas that have to do with expression. His experience has furnished him with what seems to him to be ample negative proof of the truth of Dr. Mills' conclusions.

DR. WILLIAM HOUSE, Portland, Ore., said that these cases are comparatively frequent and he is unwilling to believe that Dr. Mills' recent observations were limited to the one very interesting case presented. Within the past year Dr. House has seen not less than three cases of lesion of the prefrontal lobes. The first was a bullet wound which had punctured the right side of the brain about the junction of the second and third convolutions, passing through to the opposite occipital region and destroying a considerable area of the frontal cortex. The man lived eighteen months without exhibiting any symptoms, mental or physical, traceable to the wound. This case tends to oppose the contention of the authors of the paper. At the same time in another case in which he was unable to locate the growth during life, although limiting it to the right side, the chief somatic symptoms were weakness of the left side of the body, with increased left patellar reflex. Cerebration was slow and confused, and, in addition, there was loss of expression on the right side of the face, which when at rest presented a singularly blank appearance. The lesion proved to be a cyst of the right prefrontal lobe, and in presenting the specimen before the local society Dr. House called special attention to this evidence of psychic involvement, as it seemed to him that it should have been valuable in localizing the growth. In the third case, the necropsy revealed a large, probably carcinomatous tumor of the left prefrontal lobe. The symptoms included marked mental disturbance, loss of memory, slow cerebration, and confusion. Curiously enough, there seemed at times to be loss of hearing, and at other times marked acuteness, so much so that the patient could hear a whispered conversation in the next room, which he would recall and repeat twenty-four hours later. Dr. House also mentioned a fourth case, seen eight years ago at the Manhattan State Hospital, New York City, in a negro. The most marked mental symptom was a tendency to use large and often meaningless words, which may have been due, in part, to racial predilection. The diagnosis was paresis. The postmortem revealed a huge sarcoma, practically replacing both frontal lobes. Dr. House has seen fifty-four necropsies in paretics and has uniformly observed that in those cases which were markedly of the mental, rather than of the tabetic type, the pathologic process was always most pronounced in the frontal regions. It seems to him there can be no question of the importance of the frontal or prefrontal regions in the performance of the higher psychic functions, but he is at a loss to give a reason why involvement of the right prefrontal lobe, as noted in one of his cases, was accompanied by unusual mental symptoms, while an equally great involvement in another case was accompanied by none at all. He is convinced that careful study of these cases in time must yield definite information whereby neurologists will be able to distinguish lesions of the frontal lobes from those in the other blind regions. In reply to a question Dr. House said that in the case in which the face was involved there was neither a muscular nor an emotional paralysis in the ordinary sense of that word. The impression of blankness was present only when the face was completely at rest and disappeared when the man smiled or moved the muscles of the face.

DELAYED CHLOROFORM POISONING AND ALLIED CONDITIONS.

A NOTE ON THE CAUSE OF THE ANATOMIC AND CLINICAL CHANGES OBSERVED.*

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During the past two years surgeons have been aroused to the importance and frequency of delayed chloroform poisoning, and the literature of the subject has received a number of important additions. This has been so thoroughly discussed in the recent article by Bevan and Favill[1] that it is unnecessary to go into the details of the matter here, beyond mentioning a few of the salient features. The condition rarely results from ether narcosis, but follows chloroform narcosis in probably no insignificant proportion, if we include all the non-fatal

* Presented before the Chicago Pathological Society.

1. JOURNAL A. M. A., 1905, xlv, pp. 691 and 754.

intoxications following operations under chloroform. A period of 10 to 150 hours elapses between the time of anesthesia and the appearance of the symptoms, generally between twenty-four and forty-eight hours. The symptoms are those of a profound toxemia, and in the urine are found organic acids and sometimes amido acids (leucin and tyrosin). At autopsy the anatomical changes are striking, most prominent being degenerative changes in the liver, these changes consisting of vacuolization, swelling, fatty changes within the cells, often much necrosis with evidences of absorption of the necrotic cells. The other parenchymatous organs share in these changes to varying degree, the kidneys usually standing next to the liver in amount of degeneration.

The manner in which chloroform brings about these changes has been one of the many problems of this subject. Are toxic substances that injure the liver and kidney generated elsewhere, or are toxic substances produced in the liver by its disintegration, which then poison the more vital organs? Is it an "acid intoxication" by the organic acids found in the urine, such as occurs in diabetic coma, or are these acids of merely secondary importance? What is the relation of chloroform poisoning to the numerous other conditions that resemble it closely both clinically and anatomically; namely, acute yellow atrophy, phosphorus poisoning, puerperal eclampsia, and many septicemias?

Through recent studies of the chemistry and biology of the cell we have learned certain facts, which, I believe, give us a clear insight into the essential changes underlying the group of toxemic disorders above mentioned, and in none of them is the application more direct and clear than in chloroform poisoning. As the facts already at hand seem sufficient to furnish the necessary data for the hypothesis about to be advanced, I venture to state it without at present producing any personally-acquired experimental proof.

Every tissue cell contains a number of enzymes, by the action of which a large proportion of its metabolic processes are carried on. There are enzymes that bring about oxidations; enzymes that maintain the equilibrium between glycogen and sugar; lipase which splits fats and probably also synthesizes them, and also ferments which split up proteids much as trypsin does, although with certain minor differences. The above enzymes we know are in the cells; there are others known that are not so thoroughly studied, and probably there are still many others that are yet to be distinguished. The sum of the action of these enzymes, with perhaps the addition of certain simple chemical reactions between the substances they produce, constitutes the metabolic activity of the cell. If any one set of these actions is prevented the metabolic activity is greatly altered, perhaps with serious consequences.

We know, for example, that when the cell does not receive food, and therefore can not meet its splitting processes by synthesis of new tissue elements, the result is a splitting of the cell structure by its own ferments, e. g., bacteria placed in distilled water undergo self-digestion, or autolysis. Similarly, if we stop in any other way the synthetic processes and still leave the proteid-splitting enzymes in an active condition, these enzymes will digest the cells. Hence if we were to poison the cells with a substance that stopped all the other life processes except the autolytic action, the cell corpses would be disintegrated by their own enzymes.

Now, chloroform happens to be, *par excellence*, just such a selective poison. It is a "protoplasmic poison," if we may use the term, which does not to any extent impede the action of the autolytic enzymes. If we add chloroform to a culture of bacteria the bacterial cells are killed, in that they are unable to multiply or to move about or to take up food and grow, but the proteolytic enzymes within them are still active and unimpaired, and these continue their proteid-splitting action. During life this proteolysis is being met constantly by synthesis, so that the changes balance one another; under chloroform the synthesis ceases while the proteolysis goes on, hence the process is all in one direction and the cell digests itself until its structure is destroyed and its proteids have been broken up into simple nitrogenous substances, such as leucin, tyrosin and ammonia compounds. Just the same thing happens if, instead of bacteria, we have under chloroform a piece of liver tissue, or an emulsion of liver cells; synthesis is impossible because there is no nutriment brought to the cells, and proteolysis goes on, the liver-cell proteids being digested into simple soluble substances.

In chloroform poisoning the process, I believe, is exactly the same. Chloroform is a protoplasmic poison, killing bacteria and unicellular animal organisms when in sufficient strength, merely inhibiting their activities when not concentrated. Its poisonous action is perhaps largely independent of its anesthetic property, which latter seems to be related more to its solvent effect on the abundant lecithin and cholesterin content of the nervous tissues. If the chloroform content of the blood is sufficient certain of the cells are poisoned to such an extent that their synthetic activities cease, while proteolysis goes on. The cells then undergo disintegrative changes as a result, and the products of this disintegration, which are to a greater or less degree poisonous, enter the circulation. Added to these are the toxic substances that accumulate because of the impaired function of the degenerated liver and kidney.

Just what elements of the cell are selectively inhibited or destroyed by the chloroform cannot be definitely decided on the evidence at hand, but I believe that the oxidative ferments are chiefly involved. If the oxidases in a cell were destroyed or inhibited we should expect to get just the changes that we observe in chloroform poisoning. The lipase would act without the normal balancing by oxidative destruction of fatty acid and glycerin, and so we should expect fatty changes, which are prominent features of chloroform poisoning. Synthetic changes seem largely to depend on oxidations and the correlated reductions, hence they would cease; the splitting of proteids would not be balanced by synthesis, and autolysis would occur. Oxidation of products of splitting would cease, and we should look for organic acids to appear in the urine, as is the case in chloroform poisoning.[2]

The corroborative evidence of the autolytic nature of chloroform poisoning is abundant. First and foremost is its close relation to acute yellow atrophy of the liver and acute phosphorus poisoning, in both of which, as Salkowski, Jacoby and others have shown, most of the changes in the liver are due to autolysis. The only specimens of postoperative chloroform poisoning that I have studied, a typical case since reported by Bayard Holmes,[3] presented such a striking resemblance to acute yellow atrophy that the possibility of this diagnosis was considered for some time. In chloroform poisoning leucin and tyrosin have frequently been found in the urine.

2. Although some experimental investigation of the effects of poisons on oxidizing ferments has been attempted, the means at hand for measuring the activity of these ferments are too unreliable to permit of any definite conclusions.

3. Holmes: "Appendicitis," 1904, p. 214.

the cases then usually being reported as "acute yellow atrophy following operation," and these amido acids are undoubtedly the product of autolysis of the liver. If the urine had been examined more often chemically, instead of merely microscopically, there is little question that these and other amido acids would have been found quite constantly, as they are in acute yellow atrophy and phosphorus poisoning. Furthermore, in a case of chloroform poisoning resembling clinically acute yellow atrophy, Taylor[4] found 4 grams of leucin, 2.2 grams of tyrosin and 2.3 grams of arginin (nitrate) in the liver.

The appearance of organic acids in the blood and urine in chloroform poisoning, which is so prominent that some cases have been reported as "acid intoxication following chloroform anesthesia," agrees fully with our hypothesis, for Magnus-Levy[5] has found that such acids are constantly produced in livers that undergo autolysis outside the body under chloroform or other similar antiseptics. Their appearance is probably due to lack of oxidation, which under normal conditions of metabolism destroys them. Since Wiener[6] has shown that autolysis occurs much more rapidly when the reaction is slightly acid than when it is neutral or alkaline, the presence of these acids is probably an important factor in the autolysis of the liver cells in which they are formed.

The relative harmlessness of ether agrees also with relatively slight poisonous properties; its anesthetic property is, as with chloroform, probably related to its solvent effect on the lipoids of the nervous tissues.

The predisposing causes of chloroform poisoning, as given by Bevan and Favill, also point to reduced oxidation as a prominent factor; e. g., diabetes, hemorrhage, wasting diseases, etc. The preventive influence that oxygen is supposed to exert is also referable to the same condition.

That children seem more often affected, "the younger the more susceptible," may be correlated with Schlesinger's[7] observation that the autolytic power of the liver is greatest in young children.

Presumably the liver is most affected because it is the site of the most active autolysis and oxidative processes of the body.

The latent period between the time of the administration of the chloroform and the onset of the symptoms agrees with numerous observations to the effect that there is a latent period between the time an organ is removed from the body and the beginning of its autolysis, to which must be added the time required for the accumulation of toxic materials in sufficient quantity to cause symptoms.

SUMMARY.

Chloroform poisoning, in common with a number of closely-related conditions characterized by intoxication and marked changes in the liver (acute yellow atrophy, phosphorus poisoning, certain septicemias, and some cases of puerperal eclampsia) probably all depend on the effect on the liver of poisons that destroy the synthetic functions of the liver cells without destroying their autolytic ferments. Autolysis of the liver cells follows, with resulting alterations in the liver structure, and the appearance of products of autolysis (amido acids and various other organic acids) in the blood and urine. It is probable that in chloroform and in phosphorus poisoning, at least, it is the oxidizing enzymes that are particularly involved, accounting for the marked fatty changes that are present in these conditions.

4. Univ. of Calif. Public. (Pathology), 1904, vol. i, p. 43.
5. Hofmeister's Beitr., 1902, 2, p. 261.
6. Centr. f. Physiol., 1905, vol. xix, 349.
7. Hofmeister's Beitr., 1903, vol. iv, 87.

CHORIONEPITHELIOMATOUS PROLIFERATIONS IN TERATOMATA,

ESPECIALLY IN THOSE OF THE TESTICLE; WITH THREE NEW CASES.*

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(*Continued from page 256.*)

3. *HYDATIDIFORM PROLIFERATIONS IN TERATOMATA.*

CASES IN THE MALE.

The preceding cases, many of them consisting of testicle tumors in which chorionepitheliomatous proliferation with teratomatous elements are demonstrable, are sufficiently numerous, similar and well authenticated to be accepted as a distinct and recognized variety of tumor. Schlagenhaufer has, in addition, described what he considers a modification of these neoplasms, which bear a similar relation to chorionepithelioma of the testicle that hydatid moles bear to chorionepithelioma of the uterus. This author has personally reviewed the case reported by Karl Breus[72] in 1878, and re-examined the material, also collecting five cases from the literature. All these cases have certain features in common. A primary testicle tumor is present in all; in most of them the testicle tumor is evidently a teratoma; in one only (Breus' case) do parts of the metastases resemble chorionepitheliomatous tissue. In all, metastatic extension into the large veins has taken place, usually reaching as far as the heart. The intravascular growths show, macroscopically at least, a striking resemblance to hydatid mole. If this resemblance is to be accepted as more than a merely superficial similarity, the microscopic findings must coincide with the picture seen in hydatidiform degeneration of the chorion, particularly in regard to the appearance and behavior of the ectodermic covering. In order to discuss this question, which has certain important theoretic features, a review of these cases is necessary, but as both Schlagenhaufer and Risel give a full review and no new cases have been added, a condensed account will suffice.

Although not the first in point of time, it is well to consider Breus'[72] case, as reviewed by Schlagenhaufer, before the others.

The autopsy showed a large testicle tumor in a man of 40. The tumor in addition to sarcomatous and carcinomatous portions contained cysts of diverse structure. The cord had attained the size of a thumb. Its dilated varicose veins were filled with narrow strands which could be traced into the internal spermatic vein and from it into the inferior cava, where the strand was 1.5 cm. in diameter, and had numerous club-shaped appendages.

In the lungs many large and small metastases were noted, the new growths being composed chiefly of syncytial forms with occasional scattered Langhans cells. According to Schlagenhaufer the nodules should be regarded as villous emboli. Small branches of the pulmonary artery contained thrombi similar to those to be described below. In the left auricle, starting from the fossa ovalis, was a slimy, grapelike vegetation comparable to an hydatid growth. The small transparent masses had a more opaque center. In the right heart a similar picture was noted, but here the mass was directly continuous with a strand of the thickness of a finger, projecting into the inferior cava and forming a skein which filled the entire chamber and projected through the open foramen and into the left heart. The intravascular growths as-

* From the Department of Pathology of the College of Physicians and Surgeons, Columbia University.

sumed a complicated glove-like form composed of myxomatous and fibrous tissue covered by an epithelium which resembled both the Langhans and syncytial type. Within the grape were cysts clothed with cubical and cylindrical epithelium.

His conclusions are:

1. The primary tumor is a teratoma.

2. The grape-like vegetations are in part equal histologically to an hydatid mole.

3. The lung metastases are the result of villous emboli, and where the epithelial covering has proliferated, a chorionepitheliomatous tissue has been formed.

Summing up, he considers this case and the four others yet to be discussed as teratomata in which an hydatid-like proliferation within the vessel has taken place because the fetal membranes or their rudiments have undergone an intravascular hydatidiform degeneration. To account for this change occurring not in the primary but only in the intravascular portions of the growth, Schlagenhaufer assumes that the ectodermal elements are here in a physiologically favorable condition, as, in a normal pregnancy, the fetal ectoderm physiologically has the property of invading the blood vessels. In the blood spaces the syncytial masses predominate, for it is their chief function to supply nourishment to the rest of the cells by osmotic processes.

Waldeyer[73] reported his case as a myxo-chondro-sarcoma. In the spermatic cord hyaline, worm-like structures, attached by pedicles to the vessel walls, occupied the veins. The covering epithelium of these "hydatids" was continuous with that of the vessel walls and in spots was "heaped up" as if to form new pedicles.

Silberstein's[74] case showed intravascular structures similar to those in the case of Schlagenhaufer. The myxomatous groundwork of the grapelike formations contained cysts lined with epithelium. The testicle tumor probably was a teratoma.

The testicle tumor described by Kanthack and Pigg[75] was evidently teratomatous. The enormous glandular metastases contained many cysts. In the great venous trunks and heart the hydatid-like growths were composed of fairly firm fibrous tissue and enclosed epithelial lined cysts.

MacCallum,[76] according to Risel[30] (p. 135), no longer regards the tumor he reported a lymph-endothelioma of the testis. The primary tumor may possibly belong among teratomata with very unequal development of the fetal layers. The widely distributed intravascular growths (re-examined by Risel) show a myxomatous groundwork, a cellular covering, continuous with that of the vessels, and cystic structures within the grape. Nowhere is chorionepitheliomatous tissue in evidence.

DISCUSSION BASED ON THE PRECEDING CASES.

Of all the cases, Breus-Schlagenhaufer's should be most seriously considered. More important than the main intravascular growths are the small villous thrombi from which he directly traces chorionepitheliomatous nodules. If these findings are accepted, they would correspond exactly to the pictures seen in the metastases of a malignant hydatid mole. Risel[30] (page 132) objects to a genetic or even morphologic identity with these structures, claiming—undoubtedly with justice—that simple myxomata (two cases of Marchand) can assume hydatid-like forms within the large blood vessels through purely mechanical causes; but this fact would not necessarily exclude the possible occurrence of true hydatids under similar conditions. A stronger argument against the claims of Schlagenhaufer is the presence of minute cysts, and not sharply circumscribed cell complexes, within the grape-like masses, and also the fibrous, more often than myxomatous, stroma, which lends weight to the assumption that these intravascular metastases have no greater specific significance than the teratomatous metastases in Steinert's or Hansemann's cases. Schlagenhaufer represents the epithelium covering the villi, in his case, as of both the type of Langhans' and syncytial cells. The mention of a "heaping up" of the covering epithelium (Waldeyer) might be regarded as the plasmodial buds seen on normal villi. I am unwilling to assume as positive a stand against Schlagenhaufer as that taken by Risel, especially as the case of Pick, immediately to be discussed, must also be considered; but, on the whole, the burden of proof still rests against the assumption that hydatid growth occurs in teratomata.

If we accept Schlagenhaufer's view, the theoretical deductions justified in regard to the genesis are not far-reaching. To assume that the presence of degenerated fetal membranes would point to a derivation from an impregnated pole cell instead of from a blastomere is not warranted, as was pointed out by Pick, Steinert, etc. If subsequent observations confirm the findings of true hydatidlike growths it will merely afford another proof of the specific nature of the ectodermal growth, which shows so many characteristics, both physiologic and morphologic, of the chorionepithelium of pregnancy.

HYDATID DEGENERATION IN A TERATOMA OF THE FEMALE.

The most interesting and also most convincing case bearing on this subject and corresponding to a nonmalignant hydatid in a teratoma, is the one described by Pick,[77] but in this instance also a reasonable amount of doubt remains, and further confirmation will be required to set the question at rest.

On opening the abdomen of a woman of 30, who was operated on for ectopic gestation, in addition to the tube, which contained a few chorionic villi, a dermoid was discovered. The dermoid was typical of its kind; but within a subsidiary cyst of some size and completely separated from the rest of the growth as well as from the ectopic sac, were numerous hydatid bodies, which in both their gross and microscopic morphology corresponded to intrauterine hydatidiform degeneration of the chorion.

In discussing this case, Pick believes that the origin of the hydatid from the tubal pregnancy can be absolutely excluded. The growth is separated everywhere by a fibrous cyst wall; the formation is old; the tubal pregnancy recent. He regards it as a part of the original dermoid "anlage," a closed portion of the membrana chorii, the cyst as a portion of the intravillous space filled with serous fluid instead of blood. This case, in Pick's opinion, confirms Schlagenhaufer's thesis, except that the question of a pole cell vs. blastomeric origin can not be decided by this or similar observations. What it does show is that Marchand's view, that a congenital anlage arises at the earliest formative stage, is correct.

With Risel, I hold that this case is open to some doubt. If the early tubal pregnancy had not produced the hydatid formations, this by no means excludes an origin from a previous pregnancy, or unnoticed abortion, by a blood channel later obliterated. It may be objected that a limitation of such metastases to one spot, and, at that, to such an inaccessible one as the center of a dermoid cyst, is inconceivable. I will acknowledge that it is unlikely, impossible it is not. Further evidence is necessary finally to settle this question.

4. CHORIONEPITHELIOMATOUS PROLIFERATION IN TERATOMATA ELSEWHERE THAN IN THE GENERATIVE GLANDS.

The chorionepitheliomatous proliferations so far dealt with have all, with the exception of Boestrom's case and perhaps my third case, had their origin from the generative glands. Boestrom has not, as far as I know, conclusively shown that the testes were normal, and, as no teratoma of the brain was found, the case is therefore incomplete and can not be classified with any certainty. Bearing the genesis of these tumors in mind, we might expect to find a chorionepithelioma wherever teratomata occur, as first suggested by Schlagenhaufer, and a few observations on record fulfill this expectation.

The case mentioned by Albrecht,[78] in which the epithelium lining the branching ducts in a teratoma of the liver closely resembled chorionepithelium, is reported with too little detail to permit the forming of a serious judgment. Judged, however, by what this author says, his assumptions are not justified.

The most convincing and unique case of chorionepitheliomatous proliferation outside of the generative organs (except that of Djewitzki, which will be next considered and in which no teratoma was found), is Ritchie's.[79] This case was also examined by Teacher,[10] who vouches for the chorionepitheliomatous nature of the growth.

In a man 24 years of age, who died of a malignant tumor of the anterior mediastinum, a large neoplasmic mass was found jutting from the root of the left lung. The mass was partly cystic and partly solid. The large cyst contained the usual dermoid constituents—hair, sebaceous glands, epidermoid structures, muscle, etc.—and was in direct continuity with the solid part of the growth. The solid portions proved typical chorionepithelioma. The numerous small nodules scattered throughout the lung were of identical composition.

The description is that of a true chorionepithelioma from a teratoma. The illustrations of this paper bear out this contention. As good a judge as Teacher agrees with the findings. The teratoid nature of the growth is apparent even if entoderm was not found. This case appears conclusive and incontrovertible evidence in favor of the occurrence of chorionepithelioma elsewhere than in the generative glands.

Djewitzki[80] reports a case of chorionepithelioma of the bladder, which also appears convincing, but has not quite the value of the previous case.

A virgin, 75 years of age (menopause twenty years previous), was curetted for hemorrhage, the curettings showing hypertrophic endometritis due to fibromyomata. Death from cardiac failure permitted an autopsy. At this was found metastases in the lungs, bronchial glands, spleen and sigmoid, arising from a small nodular tumor situated immediately beneath the mucous membrane of the bladder. All the tumors were typical chorionepitheliomata; no teratoma was found. The uterus contained only the fibroids previously diagnosed.

Djewitzki scouts the idea of a teratoma with overgrowth of the other constituents by the chorionectoderm. As a possible genesis, he suggests carrying along some of the cloacal ectodermic cells by the Wolffian duct. Another alternative he offers is the reversion to an embryonal type, or *entdifferenzierung* of the bladder epithelium.

The extreme age of the patient makes any connection with a possible concealed or denied pregnancy unlikely. A latent period of twenty or more years has previously been unknown. That the author has overlooked teratomatous constituents in his examination of the tumor is possible, or that such tissues were obliterated is also conceivable. I am inclined to regard this case, with the slight reservation already mentioned, as another instance of chorionepithelioma in the relation of consanguinity (in the sense of L. Pick) to its host. The extremely long latent period of nearly seventy-five years is in strong contrast with the usual course noted in tumors, which are classified as congenital.

5. A DETAILED DISCUSSION OF THE MORPHOLOGY AND OF THE THEORETICAL BASIS OF CHORIONEPITHELIOMATOUS TUMORS.

HISTOGENESIS.

The foregoing has shown that a certain number of tumors of the testicle, also a tumor of the mediastinum, and one of the bladder, which bear a close resemblance to the chorionepithelioma of the female, are on record. Since Schlagenhaufer published his views on the significance of these growths they have been classified as chorionepitheliomata. Where in direct connection with a teratoma and where the typical characteristics of the growth are well developed, but little difficulty will arise in recognizing their nature. Their recognition will become correspondingly difficult when teratomatous constituents can not be demonstrated (as in my first case), and where, through unknown causes, deviations from the so-called typical type of Marchand appear. In such cases it would be desirable to have one or more distinctive or pathognomonic characteristics in mind to decide the question; and we now must try to determine whether such exist.

As has just been stated, the embryonal nature of the tissue can often be shown by its occurrence in a teratoma. Its ectodermal origin has been conclusively proven in a number of cases—in Pick's ovarian teratoma in a girl of 9 years, in Risel's case, in both of which the syncytium was in direct continuity with neuroepithelium, and in my own Case 2, in which the cells of Langhans type were continuous with the epidermis, and then diffusely invaded the stroma, gradually, but without a break, merging into the papillary and atypical type of chorionepithelioma. This continuity proves merely that we are dealing with an embryonal ectodermic tissue, but does not show that the cells are specifically chorionepithelium. To look for such highly specialized characteristics as the hair found in the epidermis, or the nerve cells found among the brain substance of embryoms, would be futile, for the chorionepithelium is a primitive tissue, and normally never reaches a higher stage of development.

SYNCYTIUM, ITS VALUE AS A DISTINGUISHING MARK.

At one time it was supposed that the syncytium would prove a sufficiently specific structure to assure the diagnosis, but subsequent observations have inclined some authors to doubt this. In the first place, the term syncytium has been very loosely employed. According to Bonnet,[81] multinuclear protoplasmic masses should be divided into plasmodia, masses which have not yet undergone subdivision; syncytia, composed of a fusion of pre-existing separate cells; and symplasma, or cells which are undergoing a degenerative process during which, at a certain stage, a real or apparent fusion exists. In pathologic material we are unable to decide whether we are dealing with the first or the second, and as far as chorionepithelioma is concerned, this is of no significance if we accept Marchand's view that syncytium and Langhans' cells are merely an expression of various functional activities of the villous covering; we even do not know which is the first to appear in the human

embryo. Symplasma should be recognized by the degenerative changes, most readily appreciated in the nuclei, where they take the form of fragmentation, pyknosis, etc.

The most typical syncytium has a deeply staining homogeneous protoplasm, with well-preserved and numerous nuclei, vacuoles often containing red blood cells, and, under favorable conditions, a ciliated margin (Pick, Wlassow, etc.). Syncytial formations have been found in various inflammatory conditions, such as pneumonia and nephritis (Aschoff[82]), in carcinomata and endothelioma (Recklinghausen[82]), in adenocarcinomata gigantocellulare of the liver (Babes[83]), in the uterine mucosa in ectopic gestation (Schmidt[84]), etc., which seems to rob them of much of their specific or diagnostic value. Another possible source of error has been pointed out by Sternberg,[85] who showed that material preserved in formal-Müller lost some of the sharp cell outline, and consequently could simulate syncytium; but this artefact would still be unable to account for typical arrangement, etc. A careful study of thin sections stained by various methods will often show a tissue to be composed of discrete cells, which in thick sections or to cursory examination will appear fused and syncytial. Whether the syncytia or giant cells described by these various authors really ever so exactly correspond to or simulate the syncytium of true chorionepithelioma, with its cytologically distinctive marks (vacuolization, ciliary margin, etc.), I hesitate to affirm.

I have a tumor of the arm from a man of 77, which is a polymorphous-celled carcinoma composed of large, often polynuclear cells, which resemble syncytium, but yet do not answer to all the characteristics which should be considered necessary. Such a tumor should not be classed as a chorionepithelioma, but, on the other hand, should also not be used as a possible proof against the specific nature of syncytial formations.

DOUBTFUL TUMORS.

The tumor of the liver described by Marx[86] gives the impression of being a chorionepithelioma; whether primary or secondary must be left undecided; that of Michel certainly must be considered of chorionepitheliomatous nature (or chorionectodermal, to employ the nomenclature of Pick, who subjects it to a convincing critique[87]). Neither of these articles offers any evidence against the doctrine of chorionepithelium in teratomata.

Sternberg[88] recently reported a tumor of the testicle in a man of 26, which caused metastases in the liver, lungs and retroperitoneal glands. Both tumor and metastases were composed of light cubical cells about the capillary blood vessels, and of syncytial masses in close connection with the vascular endothelium. He classifies this tumor as a sarcoma in the sense of Malassez and Monod with vasoformative function, without supplying any new facts, except that he claims to have found syncytium arising from the maternal endothelium in young human embryos. Sternberg concludes that many, if not all, so-called chorionepitheliomata in teratomata are sarcoma or endothelioma. In the discussion which followed no additional facts were brought out. It will be of interest to see whether the promised fuller report will prove more convincing.[89]

CHARACTERISTICS OF THE NORMAL TROPHOBLAST.

But for the sake of excluding all sources of error, let us set aside syncytium as a pathognomonic structure. We then fall back on certain general or group characteristics to distinguish the chorionepithelium. It is true that the further the tumor tissue departs from its normal prototype the more difficult and questionable will its recognition become. It is by a careful study of the normal covering of the villi and of the chorionepitheliomata of the female, in direct connection with pregnancy, that we can alone hope to recognize the similar tumors, independent of gestation, arising from a teratomatous growth.

The normal trophoblast shows three varieties of cell forms—the Langhans type or zellschicht, the so-called chorionic wandering cells, and large plasmodial or syncytial bodies. Even in the chorion of pregnancy these constituents vary in their numerical relations and arrangements, not only during different stages of pregnancy, but also in individual cases. These variations become more marked as we turn to the pathologic formations, such as hydatids and chorionepitheliomata. The normal trophoblast shows certain physiologic properties (morphologically recognizable), which distinguish it from other normal tissue (unless we except the single instance of the erosive action of the osteoclast during normal bone processes), in that it invades the structures of the uterus and erodes them. This invasion, though physiologic, corresponds exactly to the invasion of malignant tumors, although usually, unlike these growths, it reaches a definite end. But in the malignant neoplasms of pregnancy—hydatid and chorionepithelioma—the process goes further, boundless and destructive proliferation results, with ultimate harm to the whole organism. This erosive action of the normal chorionectoderm follows along certain well-defined lines. The cell columns invade the decidual and also muscular tissues after the type of a carcinoma, or more diffusely so as to simulate sarcoma, sending the active chorionic wandering cells far into the structures of the host. These cells appear attracted by the blood vessels, erode their coats, creep along beneath the vascular endothelium, finally entering the lumen and causing perivascular hemorrhages. As the rapid increase in number of cells is not accompanied by a corresponding, in fact, by any, formation of new vessels, the tissues would at once be subject to lack of nutrition and consequent necrosis, were not some osmotic or other transfer of nutritional substances possible. This osmotic function would seem to be attended to by the large syncytial sheets or surfaces which, according to Bonnet, not only where in direct contact with blood, but also when more distantly removed, show a hemoglobin contents, in distinction to the other trophoblastic cells, which show such blood pigment only at their edges, where postmortem diffusion might account for it. Hofbauer[90] has actually shown the loosely combined iron in the basal layer of the syncytium, and has followed it into the stroma of the villus.

In the pathologic forms already referred to, necroses form a large part of the tumors, as the vascular supply, especially in the metastases, is often insufficient; wherever, however, the blood supply is abundant and readily reached, as in the liver and lungs, the metastases show well-developed and prominent syncytial forms. In addition to the characteristics so far brought forward, the chorionectoderm appears to exercise a destructive (lytic, if I may call it so) action on neighboring cells independent of pressure necrosis, and accompanied by the extensive formation of fibrin, which last may very possibly be traced to the hemorrhages.

To recapitulate, the normal trophoblast is composed of three cell forms, which proliferate rapidly, invade the blood vessels, cause hemorrhages, necrosis and fibrin formation, and having fulfilled their function during gestation show no further malignant properties. These same cells appear in the malignant growths of pregnancy, evince the same properties, but fail to stop be-

fore causing harm to the host. Once having entered the blood vessels, rapid and fatal metastases occur, metastases often faithfully copying the primary growth. Such tumors, whether they assume the typical or atypical form of Marchand, are recognized and accepted when in direct connection with pregnancy, partly because of this relationship, partly because they so faithfully copy the normal trophoblast. Were we to analyze each cell, nothing more characteristic would be arrived at than the analysis of a single cell taken, let us say, from a carcinoma or from a sarcoma. Again, no one property here mentioned is strictly limited to this form of growth. Sarcomata are often hemorrhagic, carcinomata metastasize through the blood vessels (Goldmann,[91] etc.).

Such properties as the glycogen contents of the Langhans cells are shared by many varieties of growths, although Lubarsch[92] is inclined to consider it a sign, though not a sure one, of the embryonal derivation of a tumor. Attempts to use the size, by actual measurement, of a cell or its nucleus, as a means of comparison or identification, are, of course, of uncertain value.

"TYPICAL" AND "ATYPICAL" FORMS OF MARCHAND.

The description given by Marchand of the two main types of tumor found in connection with pregnancy is so excellent and applies so well to chorionepithelioma in teratoma, that I will quote it in full.

"Those cases are typical in which the characteristics of the chorionepithelium which appear in the first period of gestation are represented, with no or but slight variation. They show well developed, continuous syncytial masses of the form of irregular, multinuclear strands and branching protoplasmic processes, and with more or less well developed and numerous transparent polyhedral cells of the structure of the zellschicht. Whether the Langhans cells can be wholly absent, as has been described in some cases, I am by no means certain. If they are not found in some spots, that is no proof that they are completely wanting."

"Those cases are atypical in which everywhere, or at least almost everywhere, the chorionepithelium has lost its peculiar normal grouping, and occurs only as isolated cells, which may show various forms. The cell masses which form the surface and inner layers of the decidua serotina (basalis) in hydatid mole may be taken as an example or pattern of these forms. The cells rarely show the habitus of the delicate, transparent membranous and sharply circumscribed zellschicht elements, with regular, oval nuclei, frequent mitoses and glycogenic cell protoplasm. More often their habitus is that of compact, more deeply staining and very irregularly shaped cells, with nuclei varying greatly in size, sometimes attaining enormous proportions and showing intense and often equal staining properties, which allow the recognition of their syncytial character. These elements may form multinuclear aggregates, but in many cases no large syncytial masses develop. Transitions between the two chief varieties may occur if, here and there, larger syncytia are formed."

VARIATIONS FROM MARCHAND'S TYPES ENCOUNTERED IN TERATOMATA.

Further on in the same article, but without emphasizing this point as markedly, Marchand says: "Tumors of the chorionepithelium may show certain resemblance with ordinary carcinomatous tumors." In the testicle particularly, this large alveolar type may predominate, the chorionepitheliomatous type cropping out at some small spot or first becoming manifest in the metastases. The testicle tumors described by Ribbert[32] (p. 619) impressed Pick as probably chorionepithelioma, and their further study might show typical formations. The growth described by Askanazy[66] and my own Case 2 vary still further from the accepted types of chorionepithelioma, as the Langhans cells line cystic and papilliferous configurations hardly even suggestive of the group under discussion, but betraying their true nature by entirely typical spots which are in direct continuity with the papillary formations. Lately, Pick[93] has reported a case of carcinoma of the liver in a female, which he claims is a true chorionepithelioma because of its morphologic characteristics. His explanation is based on the theory that this apparently simple tumor is a teratoma with its other tissues undeveloped. Although far from denying the possible truth of his conclusions, the proof offered in this or in similar observations, if more should be forthcoming, is very weak unless we accept the group characteristics previously discussed as sufficiently convincing, even when unaccompanied by a demonstrable teratomatous origin. It is also tempting to generalize and use such a case as an argument for the embryonal derivation of all tumors (or the converse, as an emphatic proof against their parasitic origin, as Pick has done).

IS CHORIONEPITHELIOMA A "SPECIFIC" TUMOR?

There is another possible aspect of the discussion to which I turn with great hesitation, as it involves not only the debatable question of metaplasia, but also the "specificity" of chorionepitheliomatous tissue. We have seen that syncytium and Langhans cells, or at least structures morphologically their equivalent, in direct continuity with unequivocally ectodermal tissues, have been noted by Pick, Risel and myself. Pick and Risel both regard this fact as a proof that the anlage from distinct fetal membranes, such as Schlagenhaufer has assumed, is not a requisite. Why not generalize still further, as Lubarsch[44] has done, and consider it merely as an evidence of a metaplastic change of any embryonal ectodermic structure, which under certain unrecognized conditions is capable of producing this variety of tumor tissue, just as in response to other stimuli it undergoes carcinomatous changes or degeneration (Tauffer,[94] Yamagiva[95]). By this view we would regard the chorionepithelioma as a secondary malignant degeneration of a teratoma, or, where no teratoma is found, a degeneration of the tumor "*Keim*," which gives rise to chorionepithelioma or carcinoma, depending on the nature of the stimulus. Against this view only one valid argument can be advanced, but it is of almost overwhelming force, and that is the coincident metastasising of other teratomatous constituents. To explain the composite metastases various hypotheses have been offered (see above), the most plausible being the carrying into the circulation of tumor cells which are closely related to, or the equivalent of, blastomeres, and therefore able to differentiate into all three embryonic layers. As in the resulting composite metastasis, the chorionepithelium is again the only actively "malignant tissue," we must assume that the stimulus causing this excessive proliferation is general and evenly distributed within the organism so as to act on the newly formed metastasis at this new site, which is unlikely; or that the blastomeric metastasising cell contains among its other potentialities that of forming chorionepithelium, which therefore again attains the dignity of a specific tissue.

It would seem, therefore, that this way of regarding the question, and it is not as an advocate of either metaplasia or anaplasia that it has been suggested by me, but merely as a possible train of reasoning, offers no further light on the subject and, in fact, leads us back directly to the other hypothesis. It does, therefore, strengthen, in a negative way, the conception of chorionepithelium as a specific type of tissue, as an integral part of the teratoma, and not merely as an accidental conglomeration of cells, which bear a superficial resem-

blance to the trophoblast through some vagary of growth. Of still greater and, in fact, of decisive value would be a convincing case of hydatid proliferation in a chorionepithelioma; for if the chorionepitheliomatous tissue is shown to undergo the same degeneration as the tissues of the true chorion in pregnancy, no one could deny its exact and specific equivalency. As yet the case of Breus-Schlagenhaufer is the only one which approaches this requirement, and as long as these hydatid-like forms are still under suspicion of being a merely accidental imitation due to physical forces, it can not be used in evidence.

6. CLINICAL ASPECT AND SYMPTOMS OF CHORIONEPITHELIOMA OF THE TESTICLE.

Of the 22 above-cited cases, including my own, the 4 cases of Wlassow are without any clinical data. Schlagenhaufer's has but very scanty observations; Schmorl's Case 2 at the time it was reported was too recent to be of service, likewise my own Case 2. In Steinhaus' case and my Case 1, the subsequent course could not be ascertained; consequently, only 13 cases can be utilized in trying to present the course of this variety of tumor. Boestrom's case and my Case 3, respectively, presented the symptoms of a tumor of the brain and tumor of the mediastinum, without a primary neoplasm of the testis being convincingly excluded.

The youngest patient was 16 years of age, the oldest 43; but the great majority were found in young adults in the early twenties. As the local testicle symptoms were absent or at most consisted of enlargement of one testis with very slight pain, the patients more often presented themselves on account of abdominal symptoms due to the metastases, and when all hope of a radical cure had passed.

The average duration of the disease can not be accurately determined, for the patients were unable to state when the testicular enlargement had begun, or in some cases this enlargement was never sufficient to attract attention. The longest duration was that of my Case 1, in which the testicle had been appreciably increased in size for two years. Probably the usual course will be found to be less than twelve months. Trauma was repeatedly followed by a sudden increase in size and the appearance of the metastases.

The symptoms varied greatly, but, except for such local discomfort due to the testicle tumor, which in a few cases reached the dimensions of a child's head, were confined chiefly to the abdomen and lungs. The retroperitoneal glands along the iliac fossa, and those situated higher up along the aorta, caused intestinal and stomach pressure symptoms. In one case only was jaundice noted; in several others the liver palpated, greatly enlarged and nodular. A transient edema of the leg followed operation in the case described by Carnot and Marie. Cough, dyspnea, blood-streaked or bloody expectoration were almost constant terminal symptoms, readily accounted for by the frequency of the lung metastases. The high fever in my Case 3 was probably due to necrotic mediastinal and lung tumor masses; in Scott and Longscope's patient the symptoms on admission were those of a tubercular pleurisy. The involvement of the kidneys was never manifested clinically. Risel's Case 2 had a transverse lesion of the cord due to the pressure of the metastatic tumor tissue. Toward the end, loss of weight and general cachexia were prominent symptoms in all.

Clinically, chorionepitheliomata of the testicle, therefore, show no very distinctive course. Like other malignant tumors of these organs, they are rapidly fatal; metastases, both in near and in distant organs, occur early and usually are too far advanced when first seen by the surgeon to permit of a radical cure.

7. SUMMARY OF OBSERVATIONS AND DEDUCTIONS BASED ON THEM.

1. In the female, direct continuity of malignant and non-malignant hydatids and of true chorionepitheliomata with the epithelial covering of the fetal villus has been repeatedly observed, thus proving these tumors to be composed of fetal ectoderm.

2. A similar continuity of tissues has been noted in the covering of deported villi, which acted as the starting point of metastases, arising from hydatids or chorionepitheliomata. This affords additional proof that the metastases are likewise derived from the fetal ectoderm.

3. Theoretical considerations point to the similarity of the embryologic processes which produce the normal fetus and the embryoma or teratoma. The theory of Marchand and Bonnet traces the origin of these growths from impregnated pole cells or early blastomeres, which are liberated from the cell complex, remain latent for a longer or shorter period, and then, in response to as yet unknown stimuli, resume their growth with the still inherent property of forming all the structures found in the normal embryo.

4. The resulting tumors, genetically the twin of their host, may be highly complex, imitating the normal embryo in a startling fashion; or very simple, so that they afford but little clue to their teratomatous origin (single tooth, thyroid tissue, etc.). Transitions between the complex (embryoms, teratomata, dermoids) and simpler forms (bideroms, mixed tumors, etc.) can be traced (Bonnet). Such teratomatous growths have been found in the ovary, testis, retroperitoneal space, mediastinum, brain, sacral region, etc.

5. Among the tissues found in these tumors, ectodermal structures often take a leading part. Neurocpithelium, skin and chorionepithelium have been found in direct continuity surrounded by the most diverse tissues. Wherever teratomata occur chorionepithelium may be looked for (though, of course, it does not occur in the majority of cases).

6. Consequently, these ectodermal structures are of equal significance, and it becomes unnecessary to assume a separate anlage of fetal membranes to account for the presence of chorionectoderm.

7. To the chorionectoderm, in teratomata, one must also accord a distinct and specific significance, like that accorded to a special tissue such as skin or brain substance, because in most of the recorded cases it shows all of the characteristics of the trophoblast of pregnancy. These characteristics are not only morphologic (the three types of cell forms—Langhans cells, syncytium, chorionic wandering cells—absence of vessels, etc.), but also physiologic (vaso-destruction, fibrin formation, glycogen production).

8. As in the chorionepitheliomatous tumors in direct connection with pregnancy, the chorionectoderm in teratoid tumors also assumes atypical forms, which render its recognition difficult, and perhaps, in some cases, impossible.

9. These atypical forms may present a tissue similar to the so-called atypical form of Marchand, or, as the result of an excessive growth of Langhans cells, a more diffuse alveolar carcinomatous, papillary, cystic, or perithelial arrangement may be found.

10. The true nature of these atypical forms of tumors

can be recognized by discovering teratomatous constituents and typically chorionepitheliomatous portions, in direct continuity with, or in gradual but unbroken transitions to, the less characteristic parts.

The foregoing chain of evidence is not weakened by the arguments advanced by certain authors. Granted that syncytium is not confined to chorionepithelium alone (although typically foamy syncytium with vasodestructive tendency and ciliary margin has not been found elsewhere), the recognition of chorionepithelium is not based on any single morphologic fact! True to its prototype in normal gestation, the chorionepithelium evinces a high proliferative activity, shown not only in the primary tumor, in the simple metastases, but appearing also in the composite teratomatous metastases, in which it again forms the "malignant" element.

To expect the chorionepithelium to differentiate into higher tissues, like the other tissues dating from "the earliest anlage" of the teratoma, is as reasonable as to look for a similar differentiation of the placental tissues, which are also examples of cells derived from "the earliest anlage," and which nevertheless retain their early embryonal characteristics throughout the long period of gestation.

In order to interpret the close connection of the chorionepithelial tissues as a "vasoformative" function and to derive their genesis from the endothelium of the blood vessels (as was done by Malassez and now again by Sternberg), it is necessary to ignore their direct continuity with certain undoubtedly ectodermic structures, such as epidermis or neuroepithelium.

I wish to thank Prof. T. M. Prudden for placing the resources of his laboratory at my disposal, and also for much interest and advice during the progress of this study. I am greatly indebted to Prof. F. C. Wood for the material of my two testicle cases, and for much aid and many helpful suggestions. Dr. Ludwig Pick (of Berlin) has very kindly given me valuable advice and criticism through several private communications, for which I take this occasion to thank him.

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89. Since the completion of this article the promised article by Dr. C. Sternberg has appeared in the Zeitschr. f. Heilkunde, April, 1905, vol. xxvi, No. 4, p. 105 (Ein perithelialer Sarkom (Haemangioendotheliom) des Hodens mit "Chorionepitheliomartigen Bildungen"). As it represents a formulated attack on the doctrine of specific chorionepithelioma tous tissue in teratomata, foreshadowed in the discussion of his case presented at the pathologic congress in 1904, it deserves to be mentioned.

The original testicle tumor was removed from a man of 26 years, who died two months later. Metastases were found in the lungs, liver, retroperitoneal glands, besides tumor masses floating in the lumen of the inferior vena cava. The primary growth was composed of various sized nodules made up of narrow cell columns, either arranged singly or at most in double rows about fine blood capillaries, and by the juxtaposition of these columns imitating cystic or glandlike structures. Protoplasmic masses, such as are usually described as typically syncytial, are in evidence, but not numerous, among the tumor cells and also within the blood vessels, at times completely filling the lumen. No continuity with testicle tissue could be found. The metastases in liver, lungs and glands show a more marked development of syncytial forms, which preserve the same intimate relation to the blood vessels, and a less prominent participation of the smaller elements than in the primary focus.

By reason of serial sections, Sternberg concludes that "the described tumor elements, the protoplasmic masses, are abnormal anlagen of blood capillaries." This leads us back to the opinions of Malassez and Monod. Sternberg then rapidly glances over the case literature and chooses the cases of the French authors, Risel's Case 2, and Boestrom's cases as examples of such in which no teratomatous elements were found. He then takes as his premises an arbitrary proposition: "It therefore remains to be shown," he says, "whether the demonstration of the repeatedly mentioned, large protoplasmic, multinuclear and vacuolated cellular bands and clumps justifies the diagnosis of a teratoma, or whether their derivation from the fetal ectoderm is to be regarded as proved." Sternberg next states that tumors of most varied histogenetic origin (carcinomata, endotheliomata) show syncytial formations, and that to consider such structures alone, without other characteristics of the chorionepithelium (absence of blood vessels, hemorrhages, etc.) chorionepitheliomata is unjustified. Further, that in the normal placenta some of the syncytial elements very probably are of maternal origin. Finally, that the chorionepithelium represents a structure of the "first ektodermal anlage," which in teratomata is unrepresented, the ectodermal tissues consisting of differentiated structures. The coincidence of teratomata with these endothelial sarcomata is accidental, and occurs most frequently in the testis and ovary, because here teratomata are more common.

In reply I would say that no one has attempted to make the diagnosis of teratoma by means of syncytium alone. Where no teratomatous elements were found the tumor tissue showed the very characteristics demanded by Marchand. In the less typical cases, such as Askanazy's and my own Case 2, other teratomatous elements were demonstrated. One of the strongest advocates of the specific nature of chorionepithelioma in teratomata (L. Pick, Virch. Arch., vol. clxxx, No. 1, p. 176), acknowledges this occurrence of syncytium in other tumors, also the possibility of maternal syncytium in placentation. The objection advanced by Sternberg, that chorionepithelium is a tissue of "the first ectodermal anlage," which otherwise does not occur in teratomata, falls to the ground when we consider that this tissue, though of "the first anlage," retains its undifferentiated structure throughout the entire course of pregnancy (i. e., that its first anlage is also its permanent condition), and that complex teratomatous metastases can be explained only by assuming the presence of still undifferentiated cells within the primary teratoma (call them Keimgewebe, blastomeres, as you will), which also represent tissue of this "first anlage."

One point, and this has been a crucial one, has been entirely neglected by Sternberg. Even if he could find justification in interpreting the syncytial formations as endothelial in origin, how does he account for their occurrence in direct continuity with other undoubtedly ectodermal tissues, such as neuroepithelium?

Sternberg has therefore discovered no new facts which undermine or even weaken the position taken by Pick and others, who claim that chorionepithelioma in teratomata has a "specific" value. He has merely again interpreted the genesis of syncytial forms from the vessel endothelium, as did Malassez and other French authors, without offering new proof in support of this old contention.

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Ideals of Medicine.—Dr. Howard S. Anders says that the highest aims and noblest accomplishments of medical science and practice are in the prevention of disease in its myriad forms and of all that it entails.

CHRONIC ACETANILID POISONING

WITH REPORT OF A CASE DUE TO ABSORPTION OF THE DRUG FROM AN ULCER OF THE LEG.*

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It is well known that an overdose of acetanilid may produce alarming or even fatal results and that with an average dose the same untoward symptoms may follow in one who, because of idiosyncrasy, is peculiarly sensitive to the influence of the drug. There are few physicians who have used the remedy at all extensively who have not at times seen more or less pronounced cyanosis, feeble pulse, subnormal temperature, sweating, yawning, nausea, vertigo, perhaps syncope or marked symptoms of collapse, follow its administration.

The literature abounds in reports of acute toxic symptoms after acetanilid. Some of these doses have been small, 1.5 to 5 grains, yet, on the other hand, large doses have been borne with impunity. I have known 30 grains at a dose to be given for the relief of pain, this amount being often repeated, yet no unpleasant results followed. Hartge[1] reports 30 grams (450 grains) as having been taken without a fatal result. Elmquist[2] saw a woman who had taken 8 grams (120 grains) with suicidal intent. Though the stomach was not washed out until two hours after the ingestion of the drug, recovery followed, and there were, in fact, at no time any very alarming symptoms.

While these acute dangers attending the use of acetanilid are recognized by the profession, and even to a limited extent by the intelligent layman, it is not so well known that the long-continued use of acetanilid is attended by fairly definite poisonous effects and that idiosyncrasies exist analogous to those seen in acute poisonings, accounting for the fact that some individuals are unable to tolerate an oft-repeated dose of the drug that is easily borne by another. Chronic poisoning may escape detection because the symptoms in some instances are not pronounced; their onset, too, is often very gradual, even insidious; they mimic the manifestations of other diseases or are partly obscured by symptoms of the primary disease for which the drug was taken, so that it is often no easy matter for the physician to recognize the existence of toxic effects. And especially is it difficult when he is unaware of the fact that the patient is taking the drug or when, as so often happens, the patient persistently denies the existence of any drug habit.

It is fitting, therefore, to call attention to the clinical features attending the chronic use of this drug, so that they may be better known, and it seems an opportune time to review the subject of chronic acetanilid poisoning, for several cases have recently been reported, and the committee on chemistry of the Council on Pharmacy and Chemistry of the American Medical Association has just told us of the large number of patent and proprietary remedies containing this drug. The spread of such knowledge as that contained in this admirable report, as well as the knowledge as to the symptoms and dangers of chronic poisoning, ought to make physicians and laymen more cautious in the handling of the remedy and help kill its wholesale and indiscriminate use in the many nostrums now on the market.

In the present paper we shall first report a case of chronic poisoning by acetanilid, the drug being absorbed from an ulcer of the leg, in this respect the case being unique. The results of a study of the blood and urine will then be detailed, as well as some animal experiments. Lastly, the attempt will be made to draw from the study of this and other reported cases a clinical picture of this condition and to show how a study of acetanilid poisoning may possibly throw light on other forms of disease attended by somewhat similar changes in the blood, urine and spleen.

REPORT OF THE CASE.

Epitome of the Case.—A woman, aged 50 years, for seven years applies acetanilid to a large chronic varicose ulcer of the leg. She has had more or less general nervousness, mental depression, weakness, dyspnea, cyanosis, palpitation, and is found cyanotic. Stopping the use of the drug causes maniacal excitement and gives proof of her being addicted to its use. The liver and especially the spleen are enlarged. The blood shows a moderate degree of secondary anemia. There is no hemoglobinemia or methemoglobinemia. Urine, dark in color, shows paramidophenol and increase in ethereal sulphates. There is no albumin, sugar or casts, and no methemoglobin. Animals after being given acetanilid for a long time show only slight blood changes; splenic changes also slight, though in one dog an appreciable increase in the amount of connective tissue. Patient recovers after gradual withdrawal of the drug.

History.—Mrs. A. W., American, aged 50 years, widow, cook by occupation. Family history negative. Patient did not have any of the diseases of childhood. There is no history of venereal or other infectious disease. Menstruation was regular until two years ago, when the flow ceased. Patient was married at 23; never pregnant. With the exception of trouble with the left leg, the patient was in good health up to five years ago.

Present Illness.—From early girlhood the veins of the legs were prominent, particularly on standing. At 20 years of age one of the veins of the left leg ruptured, bled profusely, and later the leg became ulcerated and this ulcer has never completely healed. Ten years ago the ulcer was skin-grafted, with no permanent benefit. For the past eight years the ulcer has involved the entire circumference of the leg and has remained unchanged in size and symptoms. For the past seven years the patient has applied daily a powder to the ulcer for the relief of pain. This powder was obtained from a veterinary at a cost of $2 per pound, a pound lasting about one month. Four years ago there was some pain in the right heel and ankle of a rheumatic character, but no swelling or redness of this or any other joint.

For five years the patient has had attacks at intervals of about six months, characterized by weakness, shortness of breath, hot flashes, with sensations of fever over the body, sweating and mental depression. After a few weeks of rest the symptoms have disappeared and she has felt as well as usual. Fifteen months ago one of these attacks came on, from which the patient has not recovered as before. Rest in the country improved the general condition somewhat, but recently the weakness, shortness of breath and pallor have increased.

On admission to the hospital she complains of weakness, hot flashes over the face and body, sweating, dyspnea on exertion, mental depression, pain and discomfort from the ulcer of the left leg. The appetite is good, bowels are regular. There are no headaches or vertigo.

General Examination.—The patient is a rather large, middle-aged woman, of medium height, weight about 170 pounds. General appearance anemic. The face and hands are of a dusky, slightly icteric tint. Lips and finger-nails are bluish. Musculature is flabby. Mental condition good.

The pupils react rather sluggishly to light, but normally to

* Read, by invitation, at the meeting of the County Medical Society, Philadelphia, Jan. 10, 1905. The report of this meeting, with the discussion, appears on page 379 of this issue.

1. Hartge: Petersburg. Wochenschr., 1890, No. 8.
2. Elmquist: Hospitalstidende, 1904.

accommodation. The scleræ have a slightly icteric tint. The teeth are all but one absent, tongue slightly coated.

The chest is well formed and expands normally on inspiration. The breasts are large and pendulous. The heart is enlarged, the left border of dullness lying 4 cm. to the left of the left mammillary line, the right border at the right sternal margin. A systolic blowing murmur is heard at the apex, transmitted to the left and upward over the precordium. Sounds at the base are impure, but there are no definite murmurs. Pulse 100, rather weak. Temperature 98.6. Lungs negative.

The abdomen is prominent, the walls thick and flabby. There is a small partially-reducible umbilical hernia, and also a reducible right inguinal hernia. The liver is palpable 4 cm. below the right costal arch and slightly tender; its upper border of dullness is at the fifth interspace in the mammillary line. The spleen is palpable, as a rather firm, elongated and flattened mass. It is easily movable and is apparently about three or four times its normal size. The pelvic organs are normal. The entire circumference of the middle two-thirds of the left leg is occupied by an ulcer involving the whole thickness of the skin. The floor of the ulcer is irregular, covered with grayish necrotic material having a foul odor. The edges are sharply defined and thickened. The skin distal to the ulcer is indurated and edematous. There is slight hemorrhage from the ulcerated surface on removing the dressings. A small piece of tissue excised from the margin of the ulcer showed microscopically the histologic changes characteristic of chronic inflammation. The veins of the right leg as well as of the left show a number of varicosities.

The axillary, inguinal, cervical and epitrochlear glands are not enlarged.

Blood Examination.—Red corpuscles, 3,528,000; white corpuscles, 12,000; hemoglobin, 40 per cent.; color index, 0.57. In the fresh specimen the red cells were about normal in size and shape, although there were a few rather small cells present. Smears stained with Ehrlich's triacid stain showed a slight poiklocytosis, but no nucleated red cells. A differential count of 250 leucocytes gave 9.6 per cent. small mononuclear, 4.8 per cent. large mononuclear, indentate nucleus and unclassifiable; 84.6 per cent. polynuclear neutrophiles.

Urinary Findings.—On admission the urine was clear, dark amber in color, acid, specific gravity 1022, no albumin, no sugar; no blood-pigments nor bile-pigments were found, although with nitric acid a dark color ring appeared, resembling that found in urine after the administration of coal-tar products. There were no casts nor red cells, but a few leucocytes were present.

Ophthalmoscopic Examination.—Some time after admission an examination of the eyes showed no retinal changes.

Diagnosis.—The dyspnea and cyanosis seemed out of proportion to the cardiac and pulmonary findings and the powder used for so long on the ulcer was examined as a possible cause. The powder, of the nature of which the patient was ignorant, was tested as to solubility, chemical reactions and melting point, and found to correspond in all respects to acetanilid. Further tests revealed no admixture of other common drugs or alkaloids.

A few days after admission the application of the acetanilid to the ulcer was stopped. This was followed within twelve hours by symptoms of extreme nervousness and excitement bordering on the maniacal, and the patient complained bitterly of pain in the affected leg, so that it was found necessary to restore the drug for the time and to restrict the amount gradually. Acetanilid from the drug room was applied on several occasions in place of the powder brought in by the patient, with the same effects. Coincident with the withdrawal of the acetanilid a gradual improvement in the condition of the blood was observed.

Further Blood Examinations.—Soon after admission, before any reduction in the amount of acetanilid, examination showed red corpuscles 3,864,000 and 60 per cent. hemoglobin. The blood was dark, but at no time showed any marked brown or chocolate tinge. Five examinations for methemoglobin were made with negative results. There was no hemoglobinemia. The coagulability was slightly decreased. There was a moderate poikilocytosis observable in the fresh specimen. In the stained specimen there were a number of microcytes, an occasional macrocyte; and one nucleated form (normoblast) was found in counting 250 whites. Polychromatophilia was moderate. The leucocyte count was 9,900. A differential count of 250 gave 13.6 per cent. small mononuclear, 5.6 per cent. large mononuclear, 0.8 per cent. mononuclear neutrophiles and 78.8 per cent. polynuclear neutrophiles.

Two weeks after the entire withdrawal of acetanilid the blood count was 5,500,000 reds, 5,100 whites, 69 per cent. hemoglobin, coagulability normal, no poikilocytosis, though the red cells averaged somewhat smaller than normal.

The patient has remained in apparently good health, has gained about fifty pounds in weight, color is normal, heart action normal aside from the persistence of a slight systolic murmur, spleen and liver reduced in size. The last blood count showed the red cells 5,580,000, whites 11,800, hemoglobin 100 per cent. The slow healing of the ulcer with skin grafts; the deformity from cicatrices declared by the surgeon, Dr. J. B. Murphy, to be irremediable, led finally to the advice to have the limb amputated. This was successfully done above the knee and an artificial leg can now be worn.

DETAILS OF URINARY FINDINGS.

As already noted, the urine presented a number of interesting characteristics in color, amount and chemical constituents. Daily twenty-four-hour specimens were examined for a period of three months from the date of admission, during which time the amount of acetanilid applied to the ulcer was gradually decreased and the effect on the urine, blood and general condition of the patient noted. On admission the patient was applying from ½ to 1 ounce of acetanilid crystals to the ulcer daily.

Amount.—The total urine in twenty-four hours varied from 1,300 to 2,800 c.c., average about 1,800 c.c., with an average specific gravity of 1,015.

Color.—The color of the urine when passed was dark reddish amber, at times resembling port wine, becoming gradually darker on standing, until after several days the specimen was brownish black, indistinguishable in color from a concentrated solution of Bismarck brown. Fresh specimens were repeatedly examined for blood, hematin, hematoporphyrin, indican and the bile-pigments with negative results. Fehling's solution (Haines' modification) was not reduced. Cover-glass preparations of bacteria, such as *B. coli communis* and *B. typhosus*, took a light brown stain when immersed in the urine for an hour. Celloidin sections of various tissues showed a diffuse brown staining of the connective tissue when treated for a short time with urine that had been allowed to stand in the light for a few days. An aqueous solution obtained by carefully evaporating the ether extract of the pigment from the urine gave the color reactions of paramidophenol[3]; the alkaline solution became violet on exposure. With bleaching powder there was produced a violet color, changing to green.

The color of the urine became gradually lighter and the quantity smaller as the acetanilid was decreased until, on its entire withdrawal, the urine was light yellow, remaining unchanged in color on standing, with an average total urine in twenty-four hours of 1,300 c.c.

Paramidophenol.—Specimens of the urine were tested for the presence of acetanilid in the form of paramidophenol, as follows: 100 c.c. of urine were evaporated to 80 c.c., boiled with 8 c.c. of concentrated HCl. for three minutes and, after cooling, shaken out with ether. The residue obtained by evaporation of the ethereal extract was dissolved in 10 c.c. of water and 3 c.c. of 5 per cent. carbolic acid added. On the addition of calcium hypochlorite solution, a reddish color appeared, which on adding ammonia became blue. This is the indophenol reaction showing the presence of paramidophenol.

Total Sulphates.—The total, ethereal and mineral (free) sulphates was estimated as follows[4]: 100 c.c. of filtered urine were treated with 5 c.c. of concentrated hydrochloric acid and

3. Allen: "Commercial Organic Analysis," vol. III, part I, p. 213.
4. Webster and Koch: "A Laboratory Manual of Physiological Chemistry," p. 65.

boiled for fifteen minutes. While boiling, the sulphates were precipitated by the addition of 2 c.c. of saturated barium chlorid solution. The precipitate, after settling from the warm solution, was removed quantitatively to a filter of known ash, washed till no trace of chlorids appeared in the wash water, dried at 100 C., ignited in a platinum crucible till the weight remained constant, and weighed.

Ethereal Sulphates.—(Salkowski's method), 200 c.c. of filtered urine were treated with an equal volume of barium solution (two volumes of saturated barium hydrate solution and one volume of saturated barium chlorid solution) and filtered through a dry filter; 100 c.c. of the filtrate, containing the ethereal sulphates, were treated as above for total sulphates, except that 10 c.c. of hydrochloric acid were added before boiling.

Mineral Sulphates.—(Found by taking the difference between total and ethereal sulphates.) Several direct determinations of free sulphates, and of the ethereal sulphates from the residual filtrate were made as a control to the above, but this latter method was found subject to slightly greater error and was hence discarded. The results are computed in terms SO_4.

DETAILS OF TREATMENT AND COURSE.

Throughout the period of these observations (November 20 to February 3) the patient was on general ward diet of fairly constant average composition, the appetite was fair, bowels regular. No coal-tar preparations aside from acetanilid were given, and no other medicine except necessary laxatives, and after the withdrawal of the acetanilid occasional small doses of codein.

URINALYSIS TABLE.

Date.	Medication in 24 hrs.	Total Urine, 24 hrs.; c.c.	Sp. Gr.	Color.	Sulphates Estimated in Terms of SO_4.			Paramidophenol in Ur.	Albumin.	Haine's Solution Reduced.
					Total Sulphates. Gms.	Ethereal Sulphates. Gms	Mineral (free) Sulphates. Gms.			
Nov. 24	Acetanilid, six drams locally to ulcer.	1800	1014	Clear reddish amber.	.792	.756	.036	+	0	0
Dec. 9..	Acetanilid, three drams locally to ulcer.	2300	1011	Clear reddish amber, slightly lighter than previously.	.805	.777	.028	+	0	0
Dec. 14	Acetanilid, three drams locally to ulcer. Sod. sulph., two drs. by mouth.	1800	1015	Light amber	1.186	.668	0.518	+	0	0
Dec. 23	Acetanilid, one dram locally to ulcer. Sod. sulph., two drs. by mouth	1900	1013	Light orange yellow	. . .	. . .	. . .	+	0	0
Dec. 29	Package of acetanilid found at bedside; one-half ounce applied twice to leg. Sod. sulph., two drs. by mouth.	1500	1015	Dark amber	. . .	. . .	. . .	..	0	0
Jan. 23	Acetanilid entirely withdrawn since Jan 1. Sod. sulph., two drs. by mouth.	2800	1013	Light yellow	2.626	.218	2.227	*	‡	0
Jan. 26	Sod. sulph., two drs. by mouth	1400	1019	Yellow...	1 971	.138	1.833	..	0	0
Jan. 29	Sod. sulph., two drs. by mouth.	1800	1013	Light yellow	1.828	.148	1.680	..	0	0
Feb. 1..	Sod. sulph., two drs.; acetanilid, thirty gr. by mouth (five gr. q 4 h.)	2000	1013	Dark yellow	1.686	.592	1.094	..	0	0
Feb. 3..	Same as above..	1700	1018	Dark yellow	3.292	.475	2.817	†	0	0

* None found in treating 100 c.c. urine. ‡ Trace serum albumin
† Extract of 20 c.c. gives good test.

On November 24 the patient was receiving 3 vi of acetanilid applied locally to the ulcer in doses of 3 ii three times a day, somewhat less than she was accustomed to use on admission to the hospital. The urine was clear reddish amber in color, increased above normal in quantity, but contained no albumin nor sugar. Tests for acetanilid (in form of paramidophenol) were positive. The total sulphates in twenty-four hours were found to be 0.792 gm., of which 0.756 gm. were ethereal sulphates and only 0.036 gm. free sulphates. A few days later, December 9, the acetanilid was reduced to 3iii in twenty-four hours applied to ulcer. Paramidophenol present in urine as before. The total sulphates at this time amounted to 0.805 gm., of which 0.777 gm. were ethereal and 0.028 gm. free. In view of the remarkably low values for free sulphates it was thought that the long continued elimination of ethereal sulphates might have created a poverty of sulphates in the body. On December 12, accordingly, for both therapeutic and experimental reasons, sodium sulphate was given by mouth in doses of 3 ii daily, the other conditions of food and acetanilid remaining unchanged. On December 14 the urine was somewhat lighter in color, the quantity and specific gravity about the same as before. The total sulphates were 1.186 gm., of which 0.668 gm. were ethereal and 0.518 gm. free.

By December 23 the acetanilid had been reduced to 3 i applied locally to the ulcer; sodium sulphate 3 ii was given daily by mouth. The urine was light orange in color and still gave a good test for paramidophenol. The general condition of the patient had steadily improved. There was still some cyanosis, but no dyspnea; heart regular, 72 to 80 per minute, temperature normal. A few days later (December 29) the general cyanosis increased, the lips and finger-nails became blue and the patient fainted on attempting to sit up in bed. The pulse was much weaker and increased to from 84 to 100 per minute, temperature subnormal. The urine was dark amber, resembling that passed on admission. After some search there was found at the bedside a package of acetanilid, of which the patient admitted applying about one ounce during the night to relieve pain.

The acetanilid was entirely withdrawn on January 1, the cyanosis disappeared and the patient began to gain steadily in weight.

On January 23 the urine was light yellow, 2,800 c.c. in twenty-four hours, specific gravity 1013, with trace of serum albumin, no sugar. The total sulphates were 2.626 gm., of which 0.218 gm. was ethereal and 2.227 gm. free sulphates, being approximately the relation of ethereal to mineral sulphates in a normal individual. Two more determinations of sulphates (the patient still receiving 3 ii of sodium sulphate by mouth) showed at the first examination total sulphates 1.971 gm., ethereal sulphates 0.138 gm., free sulphates 1.833 gm., and at the second examination total sulphates 1.828 gm., ethereal sulphates 0.148 gm. and free sulphates 1.680 gm., respectively. Examinations of the urine for paramidophenol were negative.

The patient was then given acetanilid gr. v every four hours, making gr. xxx in twenty-four hours, for three days. After twenty-four hours the pulse showed 56 to 60, temperature 96.4 to 96.8, but no other marked symptoms until the third day, when the patient began to complain of epigastric distress, nausea, difficulty in breathing, tingling in the fingers, extreme nervousness. Lips and finger-nails became cyanotic. Pulse variable, 56 to 80 per minute, weak. Temperature subnormal, 96.4. The urine was dark yellow in color and gave a distinct reaction for paramidophenol with 20 c.c. Two determinations of the sulphates showed respectively total sulphates 1.686 gm. and 3.292 gm., ethereal sulphates 0.592 gm. and 0.475 gm., free sulphates 1.094 gm. and 2.817 gm. These numerous tests show conclusively the distinct increase in the elimination of the ethereal sulphates that follows the ingestion of acetanilid.

ANIMAL EXPERIMENTS.

The effect of prolonged dosage with acetanilid was studied experimentally in a number of animals, the particular object being to see whether any effect would be produced on the spleen.

Guinea-Pigs.—To each of two guinea-pigs was given a suspension of one-half grain of acetanilid in olive oil daily for a period of four weeks. The first pig died at the end of four

weeks. Autopsy showed an extreme tuberculous involvement of the lungs. The spleen and other organs were normal in size and appearance. The second pig increased steadily in weight and showed no symptoms whatever. At the end of four weeks the dose was increased to 1 grain per day, and two weeks later increased to 2 grains per day. This dose corresponded to about 1½ grains of acetanilid per kilo. of weight, or 105 grains a day for a man 70 kilo. in weight, and was continued for five weeks more without producing any symptom. The animal almost doubled in weight during the treatment.

A third pig weighing 475 gm. was given gr. i of acetanilid daily for four weeks, then gr. ii for six weeks more. In this animal the weight decreased gradually and at death the pig weighed 275 gm. At autopsy the heart was found dilated, filled with blood. The liver, spleen and kidneys were rather darker than normal, but otherwise showed no changes. The stomach, intestines and lungs were normal.

Rabbits.—Two rabbits were given gr. i per kilo. of body weight daily for six weeks, then gr. ii per kilo., with no symptoms and steady gain in weight until they succumbed to a disease epidemic in the animal house at the end of two and six weeks respectively. Autopsy showed no characteristic changes in the organs.

Dog.—A young adult dog weiging 12 kilos. was given gr. x of acetanilid daily for ten weeks without producing any symptoms. The general condition of the animal was better at the end of this time than that of his companions. The dose was now increased to gr. xx daily by mouth. The first symptoms appeared after three days in sluggishness and loss of appetite. The dog began to lose weight rapidly and became very weak. On the twelfth day there was inability to support the body on the hind legs, due, apparently, to weakness, as there was no real paralysis present. A small purpuric area 2 cm. in diameter was present on one flank. No hemorrhages in the mouth or elsewhere. Examination of fresh and stained specimens of the blood showed the red corpuscles rather pale, but otherwise normal in shape, size and staining reactions. No nucleated forms were found. On the thirteenth day the dog had a series of convulsions of short duration and died the following night.

At the autopsy the animal was found greatly emaciated. There were several purpuric areas over the flanks. The heart was dilated with blood, but showed no pathologic changes. The spleen weighed 13 gm., was moderately soft and flabby, capsule smooth but somewhat wrinkled, grayish red in color, and on section was dry and showed some relative increase in connective tissue. The stomach was hyperemic externally and contained a small amount of dark fluid and a few straws. The mucous membrane was hyperemic, but otherwise normal. The lungs, liver, peritoneum, intestines, kidneys and meninges showed no changes.

Microscopic sections of the spleen showed a marked increase in connective tissue with relative decrease in the pleen pulp. The stomach showed slight hyperemia. The other organs showed no microscopic changes.

REMARKS ON THE EXPERIMENTS.

The failure to obtain the picture of a marked secondary anemia in these animal experiments is worthy of note. Stengel had similar results in his animals, and Dr. Warthin of Ann Arbor informs me that in experimental poisoning by acetanilid extreme cyanosis, weakness and death were easily produced, but the degenerate red corpuscles, normoblasts, poikilocytes, etc., of high-grade anemia were not found. The failure to find uniform blood changes in human beings in this form of intoxication, as well as in the lower animals, must for the present remain unexplained except on the vague ground of idiosyncrasy.

GENERAL COMMENTS ON ACETANILID POISONING.

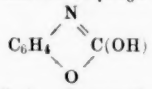
Acetanilid, as its name implies is anilin $C_6H_5NH_2$ in which one of the hydrogens of the amid group is replaced by the acetyl radical.

$$\underset{\text{Anilin.}}{C_6H_5\text{-}NH} \quad (H+HO)\ \underset{\text{Acetic Acid.}}{OC\ CH_3} = \underset{\text{Acetanilid.}}{C_6H_5\text{-}NH.COCH_3} + H_2O$$

Its activity is probably due to the formation of simple derivatives of paramidophenol in the tissues. A rapid formation of paramidophenol,

produces destructive blood changes and tendency to collapse, while the antipyretic effects pass off very rapidly.[5]

Paramidophenol has been found in the urine of patients who have taken any considerable amount of acetanilid, whenever it has been sought for, since Fr. Müller[6] in 1887 called attention to its presence in the urine in a case of poisoning by anilin.

Jaffe and Hilbert[7] found in the herbivora (rabbits) that the acetyl group was oxidized to paramidophenol and appeared as such in the urine, while in carnivora (dogs) only a part appears as paramidophenol, the rest being changed to a substance of the formula $C_7H_5NO_2$, which they regard as orthoxycarbanil 

The substances into which acetanilid is changed are joined with sulphuric or glycuronic acids (e. g., paramidophenol-ethereal sulphate). The glycuronic acid is believed to account for the levorotatory property of the urine noticed in some cases.

Cahn and Hepp,[8] who first drew attention to acetanilid as an antipyretic, believed that some acetanilid appeared unchanged in the urine, at least in dogs. Others, e. g., Mörner,[9] have failed to find unaltered acetanilid in urine. Müller[6] and others, since his paper was published, have found the ethereal sulphates of the urine increased, while the preformed mineral sulphates are lessened. This is so in our case, as is well shown by the table. It is interesting to note, in our case, too, the increase of mineral sulphates on giving sodium sulphate.

CLINICAL SYMPTOMS OF CHRONIC ACETANILID POISONING.

Manner of Acquirement of the Habit.—The acetanilid habit, which is apt to be accompanied by poisonous symptoms, is fixed on a patient who takes the drug for the relief of pain; the habit is rarely acquired from the giving of a remedy for its antipyretic effects. The analgesic properties of the drug are well known, and it is a common constituent of headache powders,[10] its cheapness making it preferred by the manufacturer of the proprietary or patent medicine to the other coal-tar derivatives. The habit is particularly apt to become a fixed one in the neurotic and hysterical. But strong-minded individuals, sufferers from real, genuine pain, as in chronic inflammations, sciatica, rheumatism, arthritis deformans, tabes, migraine, tuberculosis of bone, ulcer of the stomach, etc., may become dependent on it for the relief of pain and the securing of sleep. Larger or more frequent doses then become necessary and the sudden withdrawal of the drug is followed by exacerbations of pain, sleeplessness and restlessness, such as are seen in the morphin habitué who has his accustomed opiate removed. We tried the sudden withdrawal of

5. Cushny: "Textbook of Pharmacology," 2d edition, p. 365; also von Mering: Therap. Monatschefte, 1893, p. 577, and Hinsberg and Treupel: Archiv. f. exp. Path. u. Pharm., vol. xxxiii, p. 216.
6. Fr. Müller: Deutsche. Med. Woch., 1887, No. 1.
7. Jaffe and Hilbert: Zeitschr. f. Physiolog. Chemie., xii, p. 295.
8. Cahn and Hepp: Berlin. Klin. Woch., 1887, No. 1.
9. Mörner: Zeitschr. f. Phys. Chemie, xiii, p. 12.
10. See report of Committee on Chemistry of the Council on Pharmacy and Chemistry, American Medical Association, THE JOURNAL, June 3, 1905, p. 1791.

the drug several times in the case of our patient and there developed a condition bordering on mania. There were great restlessness, anxiety, sleeplessness, crying, complaint of pain in the leg, threats of suicide, and finally, as said, a wild and almost maniacal excitement. Codein was a very poor substitute for the acetanilid. Quiet was always restored whenever acetanilid was given by mouth or sprinkled on the ulcer, and whether the patient was aware or not of the fact that she was getting the drug; in other words, there was no imagination about it, the patient was always calm and quiet when under the drug and always excited without it.

So far as I know, this case is the only one in which chronic poisoning has resulted from absorption through the skin. Acute poisoning by absorption from the open skin has been reported, as by Newton.[11] The drug has been used locally for its analgesic and germicidal properties, and is a constituent of certain powders sometimes employed by the dermatologists, e. g. the stearate of zinc with acetanilid, in the treatment of painful or itching affections of the skin.

The *susceptibility* to the chronic use of the remedy varies greatly. Some individuals take the drug repeatedly and in goodly doses and are not perceptibly harmed by it. But in most persons slight or marked evidences of toxemia can be seen. Among the commonest manifestations are the following:

Cyanosis.—Cyanosis may be practically the only evidence of the toxic effect of the drug. Jacksch[12] says he has seen several instances of this character where the toxemia has been acute. Cabot's[13] case was of this nature and was chronic. Cyanosis seems to be the most constant symptom in both acute and chronic acetanilid intoxication. It may be extreme. It varies in intensity from time to time as the amount of drug taken varies. Its real cause is not always clear. Methemoglobinemia may or may not be present. Cyanosis unaccounted for by ordinary explanations, such as cardiac or pulmonary diseases, should lead to the investigation as to the use, perhaps secret, of the coal-tar derivatives.

Anemia and Blood Changes.—The anemia varies in intensity. It is of the secondary type; the hemoglobin is reduced out of proportion to the reduction in the number of red corpuscles. Yet in Cabot's case polycythemia rather than oligocythemia was present. The blood may show marked morphologic changes, the red corpuscles varying in shape and size, often with irregular, fragmented or free nuclei, and many corpuscles showing polychromatophilia. The normoblast is the nucleated form that predominates, though megaloblasts are also seen. The composite picture of Stengel[14] shows the extent to which the degenerative changes may go. Blood plaques are often increased in number. Basophilic stippling of the erythrocyte is sometimes seen. Leucocytosis is the rule—e. g., in our case 12,000, Stengel's 19,000—the increase being in all the varieties of white corpuscles, though in most cases it has been especially in the polymorphonuclear variety. Intercurrent or accompanying inflammatory or suppurative processes may be the cause of the polymorphonuclear increase. Myelocytes are occasionally found. In our case there was a slight decrease in the coagulability. The blood is usually dark and methemoglobinemia has been noted several times, this interefering with the ordinary color tests for hemoglobin. In other instances no such change is present. Just why there are these differences is not clear. Perhaps in some cases there is no formation of methemoglobin; in others with more of the drug the methemoglobin is formed in the red blood corpuscle; with still more the hemolytic action is more marked and methemoglobin is found in the blood plasma and appears as such in the urine.[5]

Dyspnea, etc.—A physical weakness and shortness of breath, especially on exertion, are complained of by many of these patients. Palpitation, dizziness, spots before the eyes and tinnitus aurium are also met with, as in any other anemia. It is perhaps rather characteristic of chronic acetanilid poisoning that these symptoms as well as the cyanosis are apt to be variable. This is, in large measure, due to the fact that the amount of drug taken may vary from time to time, and the improvement, both subjective and objective, that follows the cutting down of the dose is often quite remarkable. The depressing effect of acetanilid on the nervous system must account in part for these symptoms, for the degree of anemia is often not marked enough entirely to explain them.

Nervous Symptoms.—Mentally the patients are apt to be "nervous." They are neurasthenic, introspective, imaginative. There may be marked mental apathy and hebetude, even bordering on stupor.[15] And they are as deceptive as to the use of acetanilid as is the morphin victim concerning his drug. They seem to have an acquired moral degeneracy. The dependence on the drug can be proven by suddenly stopping it. Complaints of pain, sleeplessness, restlessness, with weeping and the wildest excitement may follow, and the patient begs piteously for the remedy on which he has learned to depend.

Observations are not numerous enough to enable one to make very definite statements as to the condition of the nervous system. Motor disturbances seem not to be described, except that general weakness is often noted. Sensory disturbances beyond the complaint of pain that is so common seem to be rare. Paresthetic sensations are occasionally described. No definite statements concerning the condition of the special senses or the reflexes seem warranted, though feeble patellar reflex is reported.[15]

The Heart.—Weak action of the heart is the rule. The pulse is usually soft, compressible, small and often rapid. The irritability of the heart is shown by the alteration in the rate easily brought about by exertion or by nervous excitement. Endocardial murmurs may be due to previously existing cardiac lesions such as sclerosed valves or to the blood condition—so-called hemic murmurs. Myocardial weakness may result in dilatation with the corresponding physical signs and murmurs of relative auriculo-ventricular insufficiencies. As improvement takes place on withdrawing the drug, the heart may return to its former size.[16]

The Alimentary Tract.—The alimentary tract is apt to be more or less disturbed; anorexia with occasional nausea and vomiting may occur. The bowels may be irregular. The loss of weight that is commonly seen after the prolonged use of acetanilid may, in a measure, be accounted for by the malnutrition and the digestive disturbances that are present.

The Spleen.—In some of the cases a marked enlargement of the spleen has been noted. In our case the size

11. Newton: N. Y. Med. Record, March 7, 1896.
12. Jacksch: Die Vergiftungen. Nothnagel's System, vol. I, p. 332.
13. Cabot: Phila. Med. Jour., Nov. 29, 1902.
14. Stengel and White: Univ. of Penna. Med. Bull., xv, No. 12, 1903.
15. See D. D. Stewart's case. THE JOURNAL A. M. A., vol xliv, No. 22.
16. See Stengel's case, THE JOURNAL, A. M. A., July 22, 1905.

seemed to vary with the amount of acetanilid that was taken. This possible enlargement of the spleen in long-standing cases of acetanilid poisoning should be remembered, as it may be a valuable diagnostic aid rather than a stumbling block in making us think of chronic passive congestion from non-compensated heart, or of the large spleen of hepatic cirrhosis, leukemia, splenic anemia, polycythemia, etc.

The Urine.—In amount the urine appears to vary considerably. In some cases concentrated and of high specific gravity there has been a diminished amount, e. g., in Stengel's second case specific gravity 1038 and 600 c.c. In our case there was an average output of 1,800 c.c. of a specific gravity of 1015, the variations in amount not seeming to depend very closely on the amount of acetanilid taken.

Albumin has been reported in some of the cases, usually, as in our case, as an occasional trace. In some instances larger amounts have been found, e. g., in Luce's case.[17] Casts are found generally corresponding to the amount of albumin. Cardiac weakness with passive congestion may explain the edema occasionally seen, though genuine nephritis, presumably toxic in origin, may also be present and have an influence in producing the edema. In most cases, however, there is not much more than a trace of albumin with a few casts.

Sugar is not present as a result of the acetanilid ingestion. Yet Fehling's solution is sometimes changed to red by the reduction of the copper. This is probably due to the glycuronic acid that is present in considerable amount. Several observers believe that a part of the paramidophenol is combined with glycuronic acid. When doubt as to the presence of sugar exists control tests, such as the phenylhydrazin or the fermentation tests, can be employed.

The color of the urine is so uniformly dark as to make this a most important diagnostic feature of these cases. The color varies from a dark amber to a deep port wine or even brownish-black tint. The color often darkens on standing. And it may be added that putrefactive changes in the urine do not occur quickly. At least in our case this was so, for the urine even after standing for many days was sweet in odor and free from bacteria.

Various abnormal substances have been regarded as explaining the color. Excess of indican is reported. Hemoglobin, hematin, uroerythrin, urobilin and methemoglobin have been found. Paramidophenol is, however, the substance that has been regularly found in all cases, we believe, where it has been sought for, since Fr. Müller first reported its presence. This derivative of acetanilid seems to appear in various combinations. Some state that it occurs as paramidophenol; others as acetylparamidophenol. Most, however, state that paramidophenol is in union with sulphuric acid, or, in part, with glycuronic acid. Paramidophenol is recognized by the so-called indophenol test already described. The urine is boiled for a few minutes with one-quarter of its volume of concentrated hydrochloric acid, and on cooling, a few c.c. of 3 per cent. carbolic acid solution are added, and then hypochlorite of calcium or dilute chromic-acid solution. Amidophenol gives a red color, and on adding an excess of ammonia the color changes to blue.[18] Certain color reactions may also be obtained.[5] And the urine on standing may be employed as a staining reagent for bacteria or tissues, as was done in our case.

17. Luce: Amer. Medicine, Sept. 26, 1903.
18. Neubauer and Vogel: Analyse des Harns, 10th edition, p. 614

Acetanilid as such appears but rarely in the urine, though after large doses it may possibly be present. Cahn and Hepp[8] believe it regularly appears.

There is uniformity of opinion as to the increase in the ethereal or conjugate sulphates in these cases. The method of their quantitative estimation has already been described and can be found in any of the text-books on physiologic or clinical chemistry or urinalysis. The normal ratio of mineral sulphates to the conjugate is approximately 10 to 1. In chronic acetanilid poisoning this will be greatly changed, the conjugate sulphates increasing as the mineral diminish so that the ratio may be reversed and be as 1 to 10, or, as in our case, even much less than this. Normally from 2 to 3 gms. of sulphates are eliminated by the average individual, the ethereal sulphates amounting perhaps to 0.25 gm. The great change in cases of chronic acetanilid poisoning may be seen when we notice the figures in our case, e. g., ethereal sulphate 0.77 gm. and mineral only 0.028 gm. That the ratio will, however, depend much on the amount of sulphuric acid ingested is seen from the increase in the mineral sulphates following the giving of the sodium sulphate.

Recapitulation.—To recapitulate the main points in the symptomatology: We find as the almost constant manifestations of chronic acetanilid poisoning (1) cyanosis that may be extreme, (2) more or less dyspnea and general weakness, (3) dark-colored urine that contains paramidophenol and an increased amount of the ethereal sulphates. Generally present but often a most striking and characteristic condition is the anemia of the secondary type with degenerate and nucleated red corpuscles. Methemoglobin may be present in the blood and in the urine. Dizziness, syncopal attacks, tinnitus, palpitation may be pronounced where the anemia is advanced. The spleen is often enlarged. Anorexia, nausea, vomiting and diarrhea may occur. Nervousness and restlessness are aggravated by the removal of the drug to which the patient has become habituated.

DIAGNOSIS.

The diagnosis is easy if once the condition is suspected. It may, however, be mistaken for other conditions, particularly diseases causing cyanosis or anemia or some of the functional nervous disorders. Cardiac weakness, hemic murmurs or those due to relative valvular incompetency, with the dyspnea may lead to a diagnosis of myocardial degeneration, valvular disease or congenital cardiac lesions. This mistake had been made in some of the reported cases. It is only by a careful study of the physical signs of the heart and of the disproportion between the cyanosis and the other evidences of cardiac incompetency that a cardiac origin for the cyanosis can be excluded. In all cases of cyanosis unexplained by cardiac disease, emphysema and the ordinary causes, intoxication by acetanilid or other coal-tar preparations should be sought for.

Confusion with the anemias might result from the blood examination and from the large spleen, though the degree of cyanosis commonly seen should at once attract attention and arouse suspicion of something different from pernicious anemia, chlorosis or leukemia. Methemoglobinemia should also lead one to suspect something different from the usual anemias. Such large numbers of nucleated red corpuscles with such degenerate forms are certainly rare in the ordinary secondary anemias.

Polycythemia with splenomegaly may be simulated. In one other case of chronic acetanilid poisoning that we have seen (orangeine[10] being the preparation used by

the patient) there was at first a strong suspicion that the case was one of this type as the number of erythrocytes was above the normal and the spleen distinctly enlarged.

There is, we believe, a large number of patients who are suffering from chronic acetanilid intoxication of mild degree. Some of our perplexing anemic, dyspeptic, neurasthenic, "run down" patients might have their troubles explained, in part, if we but knew of the existence of this drug habit. At times the condition for which the drug was originally taken has entirely vanished, so that there is no excuse for the continued use except habit. Searching inquiry should be made in such cases where other adequate explanation for the symptoms is lacking, as to the possible existence of the acetanilid habit, and it should be remembered that the unfortunate who is addicted to the use of acetanilid may be as prone to conceal the fact and to lie about it as the most morally perverted and depraved morphine habitué. An examination of the urine in these cases may enable us to prove the use of the drug.

CONCLUDING REMARKS.

Treatment.—The treatment of this drug habit is comparatively simple. By gradual withdrawal of the acetanilid, temporary substitution of codein for pains or sleeplessness and the use of tonics, recovery will commonly ensue. Attention to the stomach and bowels is important, as on good digestion largely depends the power of blood repair and the return of weight and strength. Much can be done in the way of suggestive treatment by sympathy and encouragement and by having a frank understanding with the patient as to the nature of the ailment, its dangers and the best way of overcoming them. Difficulties in the way of relapse into the old habits will be encountered unless the patient is in a hospital, sanitarium or at home under the careful watching of a trusty nurse. These patients become in a strict sense addicted to the use of the drug, but it has not the firm hold on them that morphin or cocain acquires on its victims. The habit is, therefore, more easily broken off. While one can not tell how much permanent damage has been done in these patients in the way of injury to heart muscle, kidney, nervous system, blood-making organs, etc., it is remarkable how rapidly they improve and approach the limits of perfect health when the use of the drug has been stopped. Even in the most desperate cases, therefore, one may give a fairly hopeful prognosis.

Nature of Splenic Enlargement.—The spleen in our case was decidedly large and fairly firm, so large as to lead, before the blood examination was made, to the question of a possible leukemia. In several other cases the spleen has been reported enlarged. The nature of the enlargement is not quite clear. It may be spodogenous, enlarging because of extra work thrown on it in disposing of waste matter, the result of blood disintegration, or it may be enlarged as the result of the irritation from paramidophenol or other substances circulating in the blood. That the enlargement is not permanent is shown by our case, in which, with the reduction in the dose of the drug, there was a diminution in the size of the spleen. In our animals very little change in the size of the spleen was produced by feeding acetanilid. In one dog there was a moderate enlargement with some increase in the amount of connective tissue.

The enlarged spleen and the cyanosis, as has been said, suggest cyanosis with splenomegaly, the condition described by Osler and others. The similarity is more striking when we consider cases such as Cabot's, or my own of the woman with the orangeine habit, in which there was polycythemia. And extremely interesting is the group of cases of enterogenous cyanosis reported by v. d. Bergh,[19] where with intestinal disturbance there was marked cyanosis with much indican in the urine and presumably a great increase in the conjugate sulphates, with sulphohemoglobin in the blood, regarded at first by Stokvis as methemoglobin. Interesting fields for investigation are opened up by this group of cases with cyanosis and some light may be thrown on the subject by a more careful study of chronic acetanilid intoxication as it occurs in man or is induced in the lower animals.

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN.

CHAPTER VI.

CATHARTICS.

Cathartics are among the most ancient of all medicinal agents, rhubarb having been in use among the Chinese for more than forty-five centuries; senna and aloes were also used in ancient times.

Liebig supposed that saline cathartics in concentrated solution withdrew water from the blood by osmosis, thus maintaining the feces in a liquid or semi-liquid state. This idea gave place to Schmiedeberg's theory, which attributes purgation to the fact that the purgative salts, being slowly absorbed in the small intestine, come into the large intestine, where they prevent absorption of the intestinal contents, thus keeping the feces soft.

Heidenhain concluded that osmotic pressure and physiologic activity of epithelium are concerned in absorption from the intestine, and that the retardation of absorption by salts is due to a lessening of physiologic activity.

Wallace and Cushny studied the action of cathartics on absorption from the intestine, and found that those compounds which give precipitates with calcium salts retard absorption more than others, and that dilute solutions of saline cathartics retard absorption of fluid from the stomach and small intestine, thus rendering the intestinal contents more fluid and more easily moved through the alimentary canal by peristalsis.

When Jaques Loeb studied the effects of certain salts which cause rhythmic contraction of muscle, he noticed that those which produce muscular twitching and an increase in the excitability of nerves are the same which produce catharsis when they are introduced into the intestine. J. B. MacCallum investigated the effects of saline purgatives when injected subcutaneously, intravenously, and when dropped on the peritoneal surface of the intestine. He found that all the saline purgatives are very much more active when injected into the blood, causing peristalsis more promptly and in very much smaller doses than when given by the mouth. This is also true of their injection subcutaneously or of merely dropping the solution on the peritoneal surface of the intestine. He further found that this action is inhibited by a small amount of calcium chlorid or magnesium chlorid solution, when it is injected, or when dropped on the peritoneal surface of the intestine. This inhibition is entirely analogous to that which occurs with calcium chlorid after stimulation of skeletal muscle by sodium citrate and other salts.

MacCallum also found that the saline purgatives cause a greatly increased secretion into the lumen of the intestine; this occurs even when excised loops of intestine are suspended in saline solution, and he considers this intestinal secretion as much the more important factor in maintaining the feces in a semi-fluid state. So far from admitting that the salines cause purgation by being excreted into the intestine after intravenous injection, he claims that they must be absorbed from the intestine into the blood in small amounts, at least,

19. Hymans v. d. Bergh: Deut. Arch. f. Klin. Med. vol. lxxxiii, p. 86.

before they can cause increased peristalsis and the stimulation of the intestinal glands to increased secretion, pointing, in support of this theory, to the much more rapid action when such small amounts are injected into the blood stream, than when they are injected into the stomach or intestine. The stimulation of secretion and peristalsis in excised loops shows that it may be independent of the central nervous system, and the ring-like contractions seen after the application of barium chlorid points rather to its action on the muscular fibers than on the nervous mechanism of Auerbach's or Meissner's plexus, but the precise seat of the action has not been determined. As an example of the minuteness of the dose required when the drug is applied to the peritoneal surface of the intestine, it is stated that three-fourths of a milligram (1/80th grain) of barium chlorid caused peristalsis in the rabbit.

Vegetable cathartics, such as cascara sagrada and rhubarb, were also found to be much more effective when used intravenously or subcutaneously than when given by the stomach. Their action is also inhibited by calcium chlorid, but to a less degree than in the case of salines.

While these experiments are interesting in explaining the mechanism of catharsis, it is not to be understood that the cathartics can be used intravenously or even hypodermically, except in rare cases. Barium chlorid is very poisonous, and even a small amount of magnesium sulphate injected into the blood would prove fatal. Meltzer and Auer have recently stated that magnesium salts immediately inhibit intestinal peristalsis when they are injected into the vein of an animal. MacCallum's work, on the other hand, corroborates that of Claude Bernard, who found in 1857 that magnesium sulphate caused peristalsis when injected subcutaneously.

Among the curious theories advanced to explain catharsis is that of Groesbeck Walsh, who remarks that the actions of cathartics in general agree with bacterial action in the liquefaction feces, in causing increased peristalsis and increased gas formation. Hence, he concludes that the cathartics act mainly by promoting bacterial activity. Even the action of calomel is thus explained, as it inhibits the growth of other bacteria, thereby promoting the rapid increase of the colon bacillus with the results just mentioned.

The use of purgatives is so general that it is usually considered a safe and harmless course, even when it does no good. This is true in the vast majority of cases, but Dr. M. L. Harris has recently called attention to the abuse of cathartics in conditions where they are potent for much harm. Among these he mentions: Closure of the intestine, as by strangulated hernia; complete local intestinal paralysis; localized spasmodic constriction, which tends toward spontaneous cure, but demands opium rather than cathartics; appendicitis and peritonitis, in which it is agreed that irritant cathartics, at least, are contraindicated, whatever the individual opinion may be in regard to the use of the salines.

Among the possibilities for direst harm it may be pointed out that when a portion of the intestinal tract is paralyzed, which may occur in ptomain poisoning, active cathartics might produce intussusception by driving the healthy contracted bowel into the paralyzed relaxed portion.

Classification of Cathartics.

There is a fairly sharp distinction to be drawn between the action of the irritant vegetable cathartics and the non-irritant salines. One class of the vegetable cathartics depends for the activity of its members on derivatives of anthracene, another class on the resin anhydrids. The preparations of the crude vegetable cathartics are usually but slightly soluble in water and dilute acids, but readily soluble in alkalies; they are, therefore, not absorbed from the stomach to any great extent, but, being soluble in the intestinal contents, they act by irritating the bowel, or by being in part absorbed. They are much slower than salines in their action, producing evacuation of the intestine only after from five to twenty-four hours with moderate doses. These facts are of much importance in choosing a purgative when there is inflammation of the intestine or other abdominal organs, as well as in pregnancy, since the irritation of the more drastic cathartics, by extending to the gravid uterus, may induce premature expulsion of the fetus.

Treatment of Constipation.

First in the treatment of constipation, for which purgatives are well-nigh universally employed, stands diet. By this means alone a very large proportion of cases of chronic constipation might be cured. It should contain a certain amount of indigestible residue, contrary to popular belief, and if the patient, in addition to correcting the diet, takes a fair amount of exercise in the open air and goes regularly to stool, but little purgative medicine will be needed.

The effect of stewed prunes and other fruits is too well known to require detailed mention; apples, figs and strawberries are equally useful. It should also be remembered that a glass of cold water, alone, taken on rising, will often act as a laxative.

Such simple remedies should always be tried before resorting to drugs in chronic constipation, since the habit of taking laxatives is easily formed, but not so easily dispensed with.

Hydragogue cathartics are sometimes used in dropsy and to relieve the kidney.

The excessive development of bacterial poisons in the intestine and their absorption into the blood cause symptoms varying from mere lassitude to profound shock. Purgatives sweep the bacteria and their poisons from the canal.

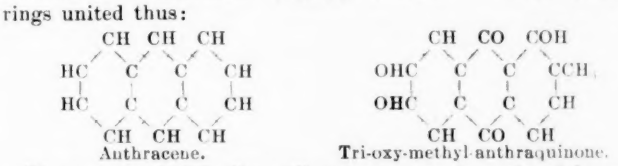
Diarrhea, due to the presence of irritating matter, such as undigested and fermenting food, is often promptly relieved by a saline purge. Saline purgatives are also useful in reducing fever, but they are not suited to cases of an asthenic type, because of the exhaustion which they produce.

We shall consider the more important of the official vegetable cathartics in this and the succeeding chapter, confining ourselves somewhat closely to their pharmacology, and in Chapter VIII we shall take up the salines, in connection with which we shall try to sound human credulity to its depths, with examples of the acme of impudent misrepresentation on the part of the makers of nostrums of the Epsom salt type.

The Anthracene Derivatives.

The vegetable cathartics of the first group which we shall discuss depend for their action on substances derived from anthracene. The graphic formula of this substance will help to show the relationship existing between several of these derivatives. Anthracene ($C_{14}H_{10}$) consists three benzene rings united thus:

Anthracene.



Tri-oxy-methyl-anthraquinone.

If an atom of H in the anthracene group is replaced by one of O, the compound is called anthraquinone or anthrachinone. Other atoms of H may then be replaced by OH and the compound is called oxyanthraquinone, a prefix to the *oxy* showing the number of such OH groups in the compound; thus the name tri-oxy-methyl-anthraquinone indicates that four H atoms of anthraquinone have been replaced, three by OH groups and one by a methyl group CH_3. This compound is known as emodin.

Emodin is found in all the drugs which owe their activity to the anthracene derivatives, but its constitution may vary in the arrangement of the substituted OH groups in different plants. Natal aloes contains no emodin, hence it is not a purgative for man, but it is not found in commerce at the present time.

Other members of this group of cathartics contain other principles besides emodin, which are derived from the anthracene nucleus; thus chrysophanic acid, or di-oxy-methyl-anthraquinone, is also found in rhubarb, senna, rumex and probably in frangula. The name indicates that there are but two OH groups instead of three, as in the case of emodin.

Many other substances, the chemistry of which is obscure, are found in the cathartic drugs.

Preparations of the crude drugs contain colloidal matter which enhances the action of the pure principles, and they are therefore to be preferred to the latter; a fact to be remembered when reading the circulars of those nostrum makers who lay stress on their extraordinary facilities for supplying *pure* principles.

The drugs of the anthracene group are characterized by a mildly irritant action whereby they purge without producing inflammation, hence they are to be preferred to the resin anhydrids in chronic constipation, or when a strong irritant action is contraindicated.

ALOE.—U. S.—Aloes, including the Barbadoes, Curaçao, and the Socotrine, is the inspissated juice obtained from various species of aloe. It was known to the early Egyptians and Romans. One or more of the various species of aloes is official in every pharmacopeia. Natal aloes is now interesting only from a scientific point of view.

Average dose (of aloes): 0.25 gm. (4 grains).

ALOE PURIFICATA.—U. S.—This was made official in 1860, because of the impurities present in Socotrine aloes, due to the crude method of collection. The dose is the same as that of aloes.

ALOINUM.—U. S.—This is a neutral principle, varying in physical and chemical properties with the variety of aloes from which it is obtained. It does not fully represent the crude drug, medicinally.

Average dose: 0.05 gm. (1 grain).

EXTRACTUM ALOES.—U. S.—This is the aqueous extract evaporated to dryness.

Average dose: 0.12 gm. (2 grains).

PILULÆ ALOES.—U. S.—Each pill contains 0.13 gm. (2 grains) of purified aloes and an equal amount of soap.

Average dose: 2 pills.

PILULÆ LAXATIVÆ COMPOSITÆ.—U. S.—Each pill contains: Aloin, 0.013 gm. (1/5 grain); strychnin, 0.0005 gm. (1/125 grain); extract of belladonna, 0.008 gm. (1/8 grain); ipecac, 0.004 gm. (1/16 grain); and glycyrrhiza, 0.045 gm. (2/3 grain). This a substitute for the proprietary pills, which under a variety of names have attained a wide popularity.

Average dose (laxative): 1 pill.

The other official preparations into which aloes enters are: Pills of Aloes and Iron, Pills of Aloes and Mastic (the well-known Lady Webster's Dinner Pill), Pills of Aloes and Myrrh, Compound Pills of Rhubarb, Vegetable Cathartic Pills (no calomel), Compound Cathartic Pills, Tincture of Aloes, Tincture of Aloes and Myrrh, and Compound Tincture of Benzoin. The last-named preparation does not contain enough aloes to make it useful as a laxative. Pills of Aloes are a convenient form of administration, the soap furnishing the alkali needed for developing the activity of aloes. The pill acts slowly and causes considerable pelvic congestion, hence it is useful in inducing delayed menstruation and increasing it if scanty. For the same reason it, more particularly than other members of the group, is contraindicated in fevers, pregnancy and in inflammatory conditions of the pelvic organs. Alone, it is not so useful in chronic constipation, but it is often added to other purgatives. The Compound Cathartic Pill is the most popular of these combinations.

Bile appears to increase the activity of aloes, and the formula given below is suggested as a suitable form of administration:

℞ Aloe .....
Fel bovis insp.....
Saponis .....āā gr. xx 1|3
M. Sig.: Make 15 pills, of which three are taken at a dose.

These may be coated with salol, to prevent their disintegration in the stomach. The coating is readily done by simply melting the salol in a shallow tin vessel, into which the pills are then dropped, and the vessel twirled until the salol solidifies. This method of coating is also applicable to other so-called enteric pills, which are intended to dissolve only in the intestine.

The Tincture of Aloes is so bitter that it is rarely used internally, but it is sometimes applied to bed sores and other local affections. Aloin alone is not so effective as aloes, but it is extremely popular in such combinations as the Compound Laxative Pill, which acts mildly after about sixteen hours.

SENNA.—U. S.—The Alexandria (short) and the Tinnivelly, or Indian (long), senna are included in the official title. One, or both, of these is official in every pharmacopeia.

Average dose: 4 gms. (60 grains).

FLUIDEXTRACTUM SENNÆ.—U. S.—This is now directed to be made by first removing the resin with strong alcohol and subsequently extracting the drug with diluted alcohol.

Average dose: 2 c.c. (30 minims).

SYRUPUS SENNÆ.—U. S.—Syrup of Senna is now a very much more acceptable preparation than was that of the previous Pharmacopeia, and the physician should see that his patient gets the better article when it is prescribed.

It represents 25 per cent. of the fluidextract, from which the principle that causes griping has been removed with alcohol, with oil of coriander to flavor. It supplies an excellent substitute for the nostrums now becoming obsolete, which depend on senna for their activities, such as castoria and the various "fig syrups," so called.

For children one or two teaspoonfuls given alone at bedtime act as a gentle laxative; twice as much may be given as a cathartic. For adults twice as much is given as to children.

This preparation is not disagreeable to the taste, but since children are usually averse to anything called medicine, it may be given in a little cocoa.

Average dose (as laxative for children): 4 c.c. (1 fluidrachm).

PULVIS GLYCYRRHIZÆ COMPOSITUS.—U. S.—This powder, previously mentioned, contains 18 per cent. of Senna. It is widely used as a laxative.

CONFECTIO SENNÆ.—U. S.—This represents 10 per cent. of Senna, with cassia fistula, tamarind, prune and fig. It is substantially the same as the well-known proprietary medicine "Tamar-Indien."

Average dose: 4 gms. (60 grains).

INFUSUM SENNÆ COMPOSITUM.—U. S.—Formerly known as "black draught" (not black drop!). This represents 6 per cent. of senna, and 12 per cent. each of manna and magnesium sulphate, flavored with oil of fennel.

Average dose: 100 to 200 c.c. (3 to 6 fluid ounces).

The otner only official preparation containing Senna is: The Compound Syrup of Sarsaparilla.

Senna is one of the best of remedies for chronic constipation, as its use does not entail a still greater tendency to that condition. It has the disadvantages of a disagreeable taste and of causing griping, if used alone; this tendency is overcome by combining it with aromatics. The confection is useful for children and in pregnancy. The milk of the nursing mother who takes Senna may purge the child. The resin which causes griping may be removed by extracting the leaves with alcohol without loss of the cathartic principle, the official fluidextract being made from Senna which has been thus treated.

The compound infusion or the confection may be used alone. The Compound Powder of Glycyrrhiza is an extremely popular laxative.

RHEUM.—U. S.—Rhubarb is obtained in Thibet and China from sources still undetermined. This valuable drug has probably been in use longer than any other substance now used wholly as a medicine.

Average dose: 1 gm. (15 grains).

The official preparations of Rhubarb are so numerous that we shall merely enumerate them, most of them being too well known to require extended notice. They are: The Extract, Fluidextract, Compound Pills, Compound Powder, Syrup, Aromatic Syrup, Tincture and Aromatic Tincture.

The average dose of either syrup is 8 c.c. (2 fluidrachms); of the tincture, 4 c.c. (1 fluidrachm); of the aromatic tincture, 2 c.c. (30 minims).

Rhubarb is useful in constipation associated with indigestion and catarrh of the small intestine, but not in chronic constipation, as the tannin present tends to increase the trouble after a time. All of the preparations are useful, but the aromatic syrup and the compound powder are probably the most popular, being especially useful in the summer diarrhea of children. The extract, the fluidextract and rhubarb in powder are all useful laxatives. The compound pills are said to be more useful in the expulsion of gas and in chronic constipation. They are very commonly given alone. The following has been much used, but it is largely empirical:

℞ Extr. rhei
Ferri reducti, āā.....gr. lx 4
Arseni trioxidi.
Strychninæ sulph., āā.....gr. i 0|06
Quininæ sulph .....gr. lx 4
To be made into 40 pills; one to be taken before each meal.

RHAMNUS PURSHIANA.—U. S.—Cascara Sagrada, or "sacred bark," is directed to be gathered a year before being used. It was introduced into medical practice in 1877, but as a domestic remedy in habitual constipation it was in use some time before that date in the region to which it is indigenous—the Pacific slope. It is now official in a number of pharmacopeias. It is not given in substance.

FLUIDEXTRACTUM RHAMNI PURSHIANÆ.—U. S.—This is prepared with 40 per cent. alcohol.

Average dose: 1 c.c. (15 minims).

FLUIDEXTRACTUM RHAMNI PURSHIANÆ AROMATICUM.—U. S. The crude drug contains a bitter acid principle which is neutralized in this preparation with magnesia, orange and glycyrrhiza being added to flavor and sweeten it. There is no special skill required in making this preparation, and any reputable pharmacist can make it equally as well as the manufacturers who put it on the market in the form of proprietary preparations.

Average dose: 1 c.c. (15 minims).

EXTRACTUM RHAMNI PURSHIANÆ.—U. S.

Average dose: 0.25 gm. (4 grains).

Cascara sagrada is probably the most useful laxative in the materia medica for chronic constipation. Unlike most of these remedies, which demand increasing doses, it improves the digestion, and the dose may be gradually diminished. Owing to the very disagreeable taste of the fluid extract, the aromatic fluid extract, or the extract, in pills or capsules, is to be preferred.

(*To be continued.*)

Clinical Reports

REPORT OF TWO CASES OF MALIGNANT ENDOCARDITIS.

JAMES F. PRESSLEY, M.D.
SAN FRANCISCO.

CASE 1.—F. D., boy, aged 16.

History.—Both of his parents are alive and well. The boy had always been well up to a month before entering St. Thomas Hospital. At that time he contracted an attack of gonorrhea and about a week later suffered from what was considered la grippe, with throat symptoms predominating. The illness which brought him to the hospital was diagnosed typhoid fever and was of about a week's duration. He had pains in his back and head, fever and delirium.

Examination.—Physical examination showed a well-developed and well-nourished boy. He was partly delirious and very apathetic. Pulse was 110, temperature 103.6. The eyes reacted to light and to accommodation. The tongue was flabby and coated. The lungs were negative.

Examination of the heart showed diffuse, forcible pulsation visible over the whole heart area, and more pronounced at the apex. This pulsation was also readily palpable. Percussion showed an enlarged heart area in all directions, especially downward and to the left. Auscultation revealed an extremely loud, harsh systolic murmur heard over all the heart area, but more distinctly at the apex. This murmur was transmitted to the left axilla and to the angle of the scapula. The pulmonic second sound was accentuated.

The spleen was greatly enlarged, tender and readily palpable. The liver extended downward to the level of the umbilicus and was tender on palpation. The abdomen was distended, painful and tympanitic. No roseola was seen. The left elbow was slightly swollen, red and tender. The urethra showed a purulent discharge containing gonococci. The reflexes were normal.

Course of the Disease.—During the two weeks the patient lived after his entrance to the hospital he was more or less delirious and sweated profusely. His pulse ranged from 90 to 140, and the temperature from 99 (almost normal) to 105.

Blood examinations showed 14,500 leucocytes, 4,000,000 reds, and 70 per cent. hemoglobin. Differential counts showed the number of polymorphonuclear neutrophiles to be relatively largely increased. No plasmodia were seen. The Widal test was negative. The urine showed a large amount of albumin, with hyaline and granular casts. The diazo reaction was negative.

Diagnosis.—The laboratory findings all seemed against the diagnosis of typhoid fever, so a diagnosis of malignant endocarditis was considered. It was difficult to say whether the endocarditis was due to a gonorrheal infection or whether the attack of la grippe was really rheumatic, with the chief symptoms showing in the throat. The fact that only one joint, the left elbow, was involved rather pointed to a gonorrheal origin.

Treatment.—The patient was given supportive treatment, and the usual remedies in endocarditis were administered, but without avail. The boy died about two weeks after his entrance to the hospital.

Autopsy.—A partial autopsy was allowed by his parents and this was performed by Dr. Philip King Brown.

The lungs were normal. The heart was greatly enlarged and softened and there were many fresh vegetations on the mitral valve. A small abscess was present near the base of the aorta. The spleen and kidneys both contained many septic infarcts. A small abscess was present in the prostate gland.

Cultures from the mitral valve, the base of the aorta, and the prostate showed a typical growth of the gonococcus of Neisser.

CASE 2.—Mrs. S. T., Italian, aged 35, was the mother of six children, and had had one miscarriage between the third and fourth child.

History.—The patient was always a large, healthy woman until two years ago, when she had an attack of acute articular rheumatism. From that time until five months ago, when her present trouble began, she had fainting attacks at irregular intervals. The present trouble began with an attack of right-sided pneumonia, since which she had lost weight and strength and had had daily attacks of sweating. Her appetite had been very poor and capricious. During these months she was treated for malaria.

Examination.—Physical examination at St. Thomas Hospital showed a thin, debilitated woman, very apathetic, complaining of pains in her head and limbs. Her appetite was poor and the bowels were constipated. Temperature was 101 and pulse 106. Inspection of the eyes showed pupils equal and sclera quite yellow. The tongue was clean. The lungs were normal.

Examination of the heart showed visible and palpable impulse over the precordial area, most pronounced at the mid-apex. The left border of the heart was just outside of the left clavicular line. A harsh mitral murmur at the apex was transmitted to the left axilla and to the angle of the scapula. The liver was not enlarged or tender. The spleen was not palpable or tender. The abdomen was not distended or tender, although the patient complained of pain about the umbilicus and in the epigastrium. There was no roseola. Nothing abnormal was found on vaginal or rectal examination. The reflexes were normal, and examination of sputum for tubercle bacilli was negative.

Blood examination showed white cells, 15,500, with a large relative increase of polymorphonuclear neutrophiles; red cells, 4,100,000, and hemoglobin 70 per cent. No nucleated red cells or plasmodia were seen.

The urine contained granular casts, but no albumin. The diazo reaction was negative, as was the Widal test. The bowel movements were small and dark colored. No intestinal parasites or their ova were present.

Course of the Disease.—The patient kept getting gradually worse and had daily sweats and pain in head and limbs. Two days before death she developed a left-sided hemiplegia.

Diagnosis.—There being no other physical signs present but the enlarged heart and mitral murmur, and the blood findings and previous history of rheumatism and pneumonia pointing in that direction, a diagnosis of malignant endocarditis was made.

Typhoid fever was eliminated by the length of time she had been ill, the number of leucocytes, 15,500, and the absence of the diazo and Widal reactions. No tubercle bacilli being present in the sputum and no physical signs being present in the lungs, tuberculosis seemed unlikely. There was no wound or focus of infection discoverable, other than the heart, to ac-

count for a pyemia. Malaria could be excluded by the leucocyte count, the character of the cells and the absence of plasmodia. Uncinariasis was considered, but the absence of eosinophiles in the blood and of the ova of the parasite in the stools made this improbable. The development of the hemiplegia just before death strengthened the diagnosis of endocarditis, as the symptom was probably due to an embolus.

Autopsy.—A partial autopsy was obtained. This showed the lungs to be free from disease, except for some old adhesions of the right pleura to the chest wall. The heart was enlarged and both new and old vegetations were present at the mitral valve, one of the new ones being as large as a white bean. The abdominal organs were normal and no latent gallstones were present in the gall bladder.

Cultures from the mitral valve were taken. These were examined by Dr. Harold Brunn in the laboratory of the medical department of the University of California and a pure growth of pneumococcus was found.

A REMEDY FOR CHOLERA.

REV. CLARENCE D. USSHER, M.D.
VAN, TURKEY, ASIA.

Recently I picked up a piece of paper, apparently cut from some medical journal for the purpose of reinforcing a binding, and my eye caught the statement, by some one who apparently wrote as an authority, that "until now no remedy for cholera has been discovered," "all bad cases die [*sic*], in spite of remedies." The writer also expressed the opinion that the patients who recover would recover without medicine. About the same time I learned that cholera was spreading in Europe and that there was panic in places.

These things lead me to feel that I have been remiss in my duty as a physician in not putting definitely before the profession the results of treatment of cholera in Van during an epidemic of six weeks' or more duration in the early part of this year.

As the only foreign physician within a week's journey in any direction, my duties are heavy and prevent me from making a scientific report or even keeping satisfactory records of the numerous cases seen. I wish simply to report a fact and to let others work out details for themselves.

I claim no credit as discoverer of the remedy, nor for its application. Koch of Berlin discovered that "quinin in solution of from 1/1000 to 1/2500 would kill the cholera germ in from ten to thirty minutes." This was applied by Graham and reported by E. B. Fullerton[1] of Columbus, Ohio, from whose report I obtained my suggestion. I wish to corroborate the statements made there and to say that cholera has lost its horrors here through the use of quinin sulphate (or bisulphate, preferably the sulphate) in ten-grain doses every hour till bile reappears in stools; from forty to eighty grains have been given. The quinin is not absorbed, but acts in the intestines. Aromatic sulphuric acid lemonade proved a satisfactory prophylactic. Sulphate of copper, 1 to 100,000, for drinking and washing purposes stopped the disease and stamped out the epidemic in the military barracks where hundreds had died.

With quinin, more than 90 per cent. of the patients recovered, including those brought to our hospital moribund.

With the old lines of treatment, every patient during the first week succumbed, testifying to the virulence of the epidemic. Saturday night at midnight I learned of the new remedy, and after that lost but two patients seen before they were moribund.

Our hospital treatment consisted of the following: Quinin sulphate, gr. 10, every hour till rice-water stools ceased and bile reappeared; sweet spirits of niter, dry cupping heat and friction for suppression of urine; saline injections when the wrist pulse had disappeared (but some patients in this condition recovered under quinin treatment without injections). Occasionally a diarrhea mixture was used when intestinal activity was excessive after the reappearance of bile in the stools. Where irritability with foul odor persisted, five grains of a mixture of equal parts of the sulphophenolates of zinc, calcium and sodium were given at intervals of from two to four hours.

I am so fully persuaded that quinin is nearly a specific for cholera that I feel it my duty to ask you to give this as wide publicity as possible.

A Columbus physician has criticised missionary physicians for not giving the world more benefit from their necessarily large experience. For my part I must confess that my seclusion here for eight years makes me diffident about putting my humble thoughts before my more scientific brethren who have kept abreast of the times.

1. Salons Annual, 1896, D. 12.

EPIGASTRIC MURMUR CAUSED BY A DISPLACED DISTENDED GALL BLADDER.

C. M. COOPER, M.B., M.R.C.S.
SAN FRANCISCO.

Epigastric murmurs are well known to be of both intravascular and extravascular origin. Thus any tumors which lie over the artery, e. g., a pyloric or pancreatic carcinoma may press on this vessel and give rise to systolic murmur or to a marked visible localized pulsation. Hence it has become a well-recognized clinical custom to examine patients who present localized pulsations and murmurs of doubtful origin in the knee-chest position. I wish, however, to report a case in which localized pulsation which was actually expansile, together with a systolic bruit, were present in the epigastric region, these signs being due to a distended, displaced gall bladder. The key to the diagnosis lay in the disappearance and reappearance of these signs coincident with the partial emptying and refilling of the cystic swelling. Operation demonstrated the mesial position of the gall bladder. After operation the murmur disappeared, and an autopsy some months later showed an absence of any arterial abnormality. Such a case suggests that we should not only examine these patients in the knee-chest position, but also in the right and left lateral postures so that the falling back of displaced organs into their original lateral position may be favored and thus elimination be made more comprehensive. Systolic murmurs, of course, have been long known to occur in association with attacks of acute cholecystitis, as do friction murmurs, and probably too little attention is paid to these diagnostic auscultatory phenomena, but it is not in such a category that the above mentioned case belongs. I have notes of a somewhat similar case, in which, however, the diagnosis was not confirmed by operation or autopsy, and hence, though very suggestive, is unreportable. The co-existence of gall bladder disease with a murmur due to another cause not infrequently occurs. The adoption of the right and left lateral postures will, I believe, aid in the diagnosis.

ADAMS-STOKES' DISEASE.

E. SCHMOLL, M.D.
SAN FRANCISCO.

A case of Adams-Stokes' disease which I had the opportunity to observe presented symptoms of heart block. There were from three to four auricular contractions to one ventricular beat. During the attacks the ventricle stopped entirely, while the auricular rhythm kept on undisturbed. The patient died after twenty-four hours.

In view of the experimental work on heart block done by Erlanger and Hering I felt justified in diagnosing a lesion of the auriculo-ventricular bundle of His.

The postmortem was limited to the heart. Macroscopically no lesion could be detected, but the microscopic examination by Dr. Ophüls showed scar formation in and around the bundle of His just below the membranous septum.

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AN ADVANCE IN CYTOTOXIC STUDIES.

When in 1899 v. Dungern found that a specific immunity could be obtained against epithelial cells, and suggested the possibility that in this direction might be sought an immune serum against cancer, intense interest was immediately awakened in the subject of cellular toxic serum. The simplicity of the method of investigation attracted many to the work, for all that was necessary was to inject an emulsion of the cells to be studied into the peritoneal cavity of a laboratory animal, obtain the blood serum of the animal after it had been injected several times, and inject the serum thus obtained into normal animals of the same species as the one that had furnished the original cells. Within a few months the literature teemed with more or less hasty reports of the discovery of serum toxic for nearly every cell in the body. Animals injected with serum of animals immunized against kidney tissue were found to develop renal lesions, and so the serum was said to be nephrotoxic; similarly hepatotoxic, cardiotoxic, neurotoxic, thyrotoxic, and every other organ and tissue toxic serum was described.

Most of the first reporters described the serum as specific for the organ used in the immunizing, but soon it began to be noted that this specificity was at the best quantitative; that is, the organ against which immunity was sought was most affected, although other organs might also show more or less degeneration. In some reports the type of organ furnishing the injected cells was even less affected by the immune serum than some of the other organs, particularly the liver and kidney. Furthermore, the immune serum was found to contain substances agglutinating red corpuscles; and agglutinated red corpuscles, by plugging up capillaries, are capable of causing much degeneration in many organs and tissues of the body. Finally it became clear that injections of ground-up organs did not produce a specific immunity against the chief cells of that organ, even when the precaution was taken first to wash out the blood. The work of Pearce was particularly conclusive in this respect, showing that immunity against specific cells is difficult or impossible of attainment. Because of these unsatisfactory results interest in cytotoxic serums has waned, in spite of the great importance that the work would have if it were successful.

A new method of attacking the problem has been devised by Beebe,[1] which offers hope of greater success. Beebe isolated from a number of organs the nucleoproteids (kidney, liver and pancreas) and immunized rabbits against them. The serum so obtained, when injected into dogs, was found to possess a much greater degree of specificity than has been obtained by immunizing with the organ emulsions. Serum of animals immunized against kidney nucleoproteids caused severe renal changes both in the structure and function of the organ, being fatal in a few days, and did not affect the liver. Immune serum for liver nucleoproteids caused severe hepatic changes and was almost without effect on the kidneys. Antiserum for pancreas nucleoproteid seemed to be equally specific.

The explanation of these successful experiments may be as follows: Every cell contains a number of proteids, of which the nucleoproteids are probably the most important and in many cells the most abundant. The other proteids are considered by many physiologists as largely adventitious, chiefly existing as food stuffs or as intermediary steps in the formation and destruction of the more complicated nucleoproteids. Furthermore, the nucleoproteids are probably the most specific constituents of the cells. The other cell proteids, as well as the carbohydrates and lipoids, are, so far as our imperfect knowledge of cell chemistry permits us to judge, much the same in the cells of different organs, but the nucleoproteids of different organs show quite distinct differences in composition, great enough to be detected by the relatively crude methods at our disposal. By using the nucleoproteids of an organ, therefore, we secure the specific ingredients and reject the nonspecific, an important step in seeking for specific cytotoxins.

The chief criticism that can be made of Beebe's work is the relatively small number of experiments, five with nephrotoxin, three with hepatotoxin, two with pancreatotoxin; a criticism that will undoubtedly soon be met with a report of further investigations of this important subject.

1. Jour. Exp. Med., 1905, No. vii, p. 733.

THE TREATMENT OF TUBERCULOSIS BY TUBERCULIN.

Recently[1] we called attention to the views of A. E. Wright of London regarding the treatment of diseases due to endotoxic bacteria by means of vaccines. In a recent article Wright[2] gives his latest views regarding this method of treatment and refers to his results in tuberculosis.

It will be remembered that Wright's method of administering bacterial vaccines, i. e., sterilized and standardized suspensions of micro-organisms, based on the fact that in bacterial diseases there are times when the body resistance is lower than normal, and times when it is higher. Wright measures the resistance to the particular infecting germ, in tuberculosis, for example, to the tubercle bacillus, by submitting a standardized culture of the organism to the action of the living leucocytes of the individual whose blood he is testing. The partic-

1. THE JOURNAL, December 23, 1905.
2. The Lancet, 1905, vol. ii, p. 1598.

ular antibacterial element measured by Wright's method is one which injures the bacteria so that they can be taken up by the leucocytes. Wright speaks of it as the opsonin. It is found that in a healthy individual the leucocytes will take up a certain number of bacteria, and this number is approximately the same in all healthy human beings. One whose leucocytes take up a number of bacteria corresponding to the number taken up by the leucocytes of a healthy person is said to have a normal opsonic index, and in disease the opsonic index may be either above or below normal. The fundamental principle underlying Wright's method is that bacterial vaccines must be administered only when the opsonic index is above normal, or, more correctly, when two tests taken at intervals have shown that the opsonic index is rising. If the vaccines are given when the opsonic index is falling they do harm rather than good.

In discussing the principles which ought to regulate the dosage of bacterial vaccines Wright calls attention to some fallacies which have become engrafted on the medical mind. One of these is the idea that in order to secure the greatest yield of protective substance it is necessary to give enough vaccine to produce a constitutional reaction of a marked character. Wright shows that this is not so at all, that just as good, and sometimes better, results are secured by small doses, and the patient is thus saved much discomfort. In tuberculosis Wright employs the new tuberculin in doses corresponding to from one-thousandth to one-six-hundredth of a milligram of tubercle powder and with perfectly satisfactory results. It seems quite certain that the mechanism which leads to the formation of antibacterial bodies is one which is easily stimulated, and it is very likely that it is possible to overstimulate it. The correctness of the dosage may be measured by testing the opsonic index, which shows a tendency to remain low longer than usual during the negative phase when too large doses are being given.

In discussing the manner of reaction of the organism in infections Wright makes a sharp distinction between general and local infections. Local infections, like lupus, for instance, tend to last for years, and he suggests that this may be because the bacteria causing them do not escape into the blood and give rise to the formation of antibacterial bodies, and because their situation places them in a position unfavorable to the action on them of such antibacterial bodies as may be present in the blood at the time the infection originated or during its course. In general infections, on the other hand, bacteria escape into the blood intermittently, but they do not always escape at a favorable time. If they escape during the time that the opsonic index is on the rise they, of course, do good, but if they escape during a period of fall in the opsonic index they may prove fatal. In discussing local infections it is also pointed out that the conditions are often unfavorable to the free circulation of lymph through the infected area, and, as the lymph carries the antibacterial bodies, this is a protection to the bacteria. It is to be noted that many of the old remedies for infection, based on empiricism, are agents which tend to increase the lymph circulation in the affected area. It is also to be noted that the surgical removal of an infected area, no matter how radical the operation, probably never removes all the nidus of infection, but it places whatever bacteria are left in a position in which they can be reached by the lymph circulation, and Nature completes what the surgeon began.

The results reported by Wright from his treatment of certain forms of tuberculosis are highly encouraging. The method has not been extensively tried in all forms of the disease, in lung tuberculosis, for example, but its use in these cases will doubtless follow. The most encouraging results followed the treatment of tuberculosis of the subcutaneous tissues and bone and tuberculosis of the lymph nodes. In the case of the former variety Wright reports so far uniform success, and the cases in which a cure was effected were those which had defied all other methods of treatment. The treatment of tuberculous lymph nodes was so successful that Wright predicts the abandonment of surgical and climatic methods in favor of tuberculin. Wright's methods have been slowly, but apparently surely, attracting more and more attention. We have seen appear in the past fifteen years not a few loudly heralded treatments for tuberculosis, only later to see them disappear discredited. Let us hope that at last we are on the right track.

A BILL TO PREVENT FRAUDS IN "PATENT MEDICINES."

A campaign of education against fraud and deception in the patent medicine business has been conducted by certain lay journals—principally *Collier's Weekly* and the *Ladies' Home Journal*—and the public's attention has been called, as never before, to the dangerous and fraudulent character of the majority of these preparations. The public is aroused; there is no doubt of this. But the public is made up of individuals and, as is usually the case, each individual waits for another to act. The *Ladies' Home Journal* seems to have recognized this fact and, having educated its readers to the point where they realize something should be done, proposes certain legislation and gives them a chance to do something. The February issue contains a bill for an act to be introduced into every state legislature that meets this winter. The bill which we reproduce on page 373 bears evidence of careful thought, and, while it is not perfect, it is as nearly so as we may hope to get one that can become a law in our legislatures.[1] "This is not a bill," Mr. Bok says, "of our individual drafting or of our own personal approval. It has been submitted and carefully gone over by the most distinguished and conscientious representatives of the law, of medicine and of the drug trade in this country. It is not a one-sided affair. It is not aimed to injure, but to protect. We

1. Bills to regulate the sale of "patent medicines" are now in three legislatures—Kentucky, Mississippi and New York.

have the best of reasons for believing and saying that the provisions of this bill will not be objectionable to those manufacturers of 'patent medicines' who have really an honest article and who are not afraid of putting the contents of their medicines on the label of each bottle. The honest men engaged in the 'patent-medicine' business are just as anxious as are we or any one else to stop the deceit and trickery running wild in their trade."

Mr. Bok devotes a page to a personal appeal to his readers to act, and undoubtedly many of them will respond, for, besides this, other matter appears in the current number of his journal, not the least important of which is a contribution by Mark Sullivan, who wrote the unsigned article in *Collier's* on "The Patent Medicine Conspiracy Against the Freedom of the Press." In the present article Mr. Sullivan tells us "How the Game of Free Medical Advice Is Worked."

Physicians are appealed to: "I would also ask the hundreds of physicians and medical associations, who have written to this magazine, to lend their attention and support to this legislation. With a very few exceptions, physicians and medical bodies all through the country have been singularly lax and remiss to the 'patent-medicine' measures which have come up before the state legislatures. Whatever may have been the causes for this remissness, it is now distinctly the part of every physician, and the organization to which he belongs, to take an active part in making this legislation possible and effective, so that legislators can no longer wonder at the absence of the medical profession at the hearings given these bills."

And this brings us to the point. What are we going to do about it? Shall we assist in this movement? No one knows so well as the physician the havoc caused by self-dosing on the part of the public. He sees, as no one else sees, the physical harm that results from the continual taking of, for instance, cathartic medicines, whether it be in the form of pillets, pills or "blood purifiers." He knows, as no one else knows, that taking such medicines produces the very ills they are supposed to cure; that nine out of ten cases of chronic constipation—the cause of so many minor ailments—are the ultimate result of the continual use of cathartics. The physician knows, as does no one else, the harm resulting from the indiscriminate use of medicines containing opiates of various kinds; that soothing syrups, nerve sedatives and acetanilid mixtures, if used without due regard to their possible injurious effects, are liable to wreck, and do wreck, the constitution alike of the healthy infant and of the robust man and woman. Medicines containing alcohol, the "bracers," have the same temporary effect and ultimate results as whisky, and everybody knows this as well as the physician, but everybody does not know, as he does, how large a number of the "patent medicines" belong to this class. No one knows as well as the physician that many of the ills for which "patent medicines" are taken are imaginary ones caused by reading patent-medicine advertisements. And, most important of all, no one knows as does the family physician how many anxious wives, husbands, mothers and fathers use money to buy a fraudulent "patent medicine" for one they love when they need it to buy bread—because, in their desperate anxiety, they are ready to grasp at any proverbial straw, and the straw offers itself in the lying advertisements of the nostrum vendors.

We know that people are being swindled by "patent medicine" promoters as by no other class. We know that the taking of these nostrums is injurious, in many instances to a serious degree, and we know that the business unregulated is against public health as well as against public morals. As physicians we know all this by actual observation and by personal knowledge of definite instances, and as no others can. Is it, then, not our duty to fight these frauds? Suppose the "patent medicine" men's association and their mouthpieces do say that we are acting for selfish motives. What of it? We know that we are not, and the intelligent public knows it. In any event, as we showed last week, they are accusing us of instigating the fight, and we might as well deserve the vituperation of these nostrum men, since we get it anyway. In reality, there would be some apparent justification for saying that we are encouraging the use of "patent medicines" for selfish purposes, because, as Dr. G. A. Syme said in his address before the Australian Medical Congress last fall, the taking of "patent medicines" makes work for physicians, and, therefore, from a commercial point of view, it would be better for us if the "patent-medicine" men were given full sway.

The legislation asked for is not against "patent medicines" *per se*, but against the fraud and deception connected with them. Some of us might think that there should be no medicines sold direct to the public. This would be ideal in the minds of some, but, though ideal, it would not be practical. Further, there is no reason why an individual should not have the right to buy a cough syrup, a box of cathartic pills, a grain or an ounce of quinin, or any non-poisonous medicines. It is not worth while to strive for an impossible ideal—the prevention of the sale of medicines to the public; but it is worth while to strive for the possible. And a law to compel the manufacturers of medicines to state plainly what they contain is a possibility. Such a law is needed for the public good, and it seems to us that it is our duty to try to get such laws passed in every state in the union, and then we should educate the public to understand the harm that lies in those preparations that contain dangerous drugs.

These are the principles on which we must carry on the propaganda—absolute non-secrecy regarding the composition of the preparations and the truth regarding their effect on those that take them. Such a platform is sane, can not be attacked, and will receive the support of the public and of most of the newspapers, in spite of the fact that they would sacrifice some of their income

by giving such support. Of course, such a platform means a campaign of education lasting for years, in which we must take the lead, but in which we would have the support of the largest part of the public.

LIVING TYPHOID CENTERS.

An enthusiastic sanitary engineer is said to have remarked a few years ago that if all public supplies of drinking water could be obtained from unpolluted sources or purified by sand filtration, typhoid fever would soon become extinct. Far be it from us to decry the importance of infected water in disseminating typhoid fever, or to cause less stress to be laid on the sand filtration of municipal water supplies. No one with an understanding of the facts can doubt that during the last few decades contaminated water has been the chief means by which this insidious disease has been kept alive and distributed to widening circles in all civilized countries. The recent improvements in the quality of water supplies—a matter in which to our humiliation the United States still lags behind the leading countries of Europe—have had the secondary effect of directing attention to the existence of other important sources of typhoid infection. We have taken occasion in these columns to emphasize more than once the rôle played by close association or contact of the sick with the well.[1] At least one extensive epidemic—that at Winnipeg, Manitoba, in 1904-5—and many minor ones have been shown to be due principally to spread of the disease from case to case. The investigations conducted by the German government into the modes of occurrence and spread of typhoid fever in rural districts in Germany have done much to establish the frequency of cases due to contact. In connection with these investigations, a recent article by Lentz[2] serves to bring into relief a source of infection that is likely to prove especially difficult to evaluate and combat. It has been known for some time that typhoid bacilli in some cases might persist in the excretions of typhoid patients far into convalescence; Lentz has now brought to light the existence of a class of persons whom he calls "chronic carriers of typhoid bacilli." It appears from his researches that a certain proportion of typhoid-fever patients—a proportion that may be as high as 4 per cent.—carry living typhoid bacilli about with them for years after complete recovery from the disease. In one case examined by Lentz, typhoid bacilli were found in the excreta fifteen years after the attack, and were present during a period of two and one-half months when the observations were made. In another case bacilli were found in every examination (thirteen) made at intervals for twelve and one-half months after the attack. A history of the infection of associates by these chronic bearers of bacilli was obtained in some instances. A particularly serious aspect of this matter appears in the difficulty of disinfecting these living typhoid centers. All the attempts made by Lentz to rid these "microbe bearers" of the typhoid or paratyphoid bacilli that they harbored signally failed, although a great variety of drugs were administered for the purpose. For the present there would seem to be little that can be done to obviate the menace of these microbe bearers to the community. The surveillance and bacteriologic control of such cases, although possibly desirable in a community endowed with the Prussian police system, is rather chimerical for less efficiently organized peoples.

1. THE JOURNAL, Nov. 11, 1905, p. 1501.
2. Klin. Jahr., 1905, vol. xiv, p. 475.

CHRONIC ACETANILID POISONING.

That chronic poisoning from acetanilid is not uncommon is evident from the numerous cases that have been reported recently. In this issue is the report of a case by Herrick and Irons, in which the absorption of the drug was from an ulcer of the leg, to which the remedy had been applied almost daily for seven years for its analgesic effect. In this respect this case is a rarity, but it warns us that care should be exercised in the use of this drug in dermatology or as an antiseptic in surgery. Points of interest in connection with the chemistry of the urine in chronic acetanilid intoxication are also referred to in the article, but what is of most value, at least to the general practitioner, is the grouping together of the phenomena of this form of poisoning, making of it something like a clinical entity.

According to Herrick, the acetanilid habit is to be suspected in a patient who presents a secondary anemia, cyanosis, dyspnea, nervousness or gastrointestinal disturbance without an adequate explanation for it in heart, lungs or other organs. Splenic enlargement is not uncommon. The crucial test is the examination of the urine. This is commonly dark in color, it darkens still more on standing and contains an increased amount of conjugate sulphates and also paramidophenol. The general practitioner, although he may not be a chemist, need not feel that the examination of the urine in such cases is beyond him, for, as will be seen by consulting this article, the test for paramidophenol is simple.

If some of the obscure cases of neurasthenia, anemia, dyspepsia, etc., were more carefully examined, we believe an explanation for them would not infrequently be found in the acetanilid habit, the drug being taken either as such or as one of the ingredients of the many headache remedies and painkillers so easily obtainable at the drug store, and so often prescribed unknowingly by physicians.

The reports of such cases can not fail to have a wholesome influence. They stimulate to greater thoroughness in ferreting out the existence of this habit, lead to greater caution in the prescribing of this remedy, which, when improperly used, is so potent for evil, and encourage us all in our efforts to combat the manufacture, sale and use of the many nostrums that contain this really dangerous drug.

CHICAGO HEALTH DEPARTMENT AND PURE-FOOD LEGISLATION.

"The Chicago Health Department might well be engaged in better business than casting slurs, directly or indirectly, at the agitation for pure-food legislation." Such is the opening paragraph of an editorial in the *Chicago Record-Herald,* January 30. It is called forth by a statement in the *Weekly Bulletin* of the Chicago Health Department. The *Bulletin,* commenting on food adulteration, says: "The steadily increasing healthfulness of Chicago—which is alleged to be the head center of the nefarious industry—does not warrant the recent sensational statement that 'thousands' of people, instead of being nourished by what they eat, are slowly done to death by it." As the *Record-Herald* says, whatever exaggeration there may be in the statement quoted, certainly Chicago health statistics do not prove anything either for or against it. "Upward of 25,000 people die annually in Chicago alone, and certainly 'thousands' could die annually in the whole country from the indirect evil effects of impure food, without making any impression on the Chicago statistics which could be directly traced." It might be suggested to the health department that adulterated foods do not necessarily kill, even though the substances used may be poisonous in character, but that they do result in injury to health. While we are not here discussing the pure-food bill, it should be remembered that the bill is not only against poisonous adulteration, but it is against any adulteration, misbranding or deception. It is rather strange for a city health board to go out of its way to aid those who are fighting legislation in the interest of health and honesty, even though some of that city's business interests may be injured if such legislation is enacted. As the *Record-Herald* says, "The harmfulness of many kinds of adulterations has been proved repeatedly by scientific tests. The people who consume the adulterated goods have no means of protecting themselves, or, rather, they have no means except through common action in their state or national governments. They must be protected by law. The argument for a pure-food law goes, however, even deeper than this. It is at bottom an argument for the 'square deal' in the food industries. 'Honest labels' is a keynote of the proposed legislation. There is not nearly so big a trace of hysterics in the agitation for the reform as there is in the health department's unfriendly comment." We might suggest to the health department that there is one point to which they never call attention in making up their statistics, and that is that Chicago is a comparatively young city, that it has been growing rapidly during the last two or three decades—especially during the last ten or fifteen years—and that this growth is made up of young, vigorous, healthy people whose normal death rate ought to be low. We have no statistics at hand to prove the assertion, but no one will deny that Chicago has comparatively very few old people, and, consequently, that natural death from old age is very much less than in older communities. This comment of ours certainly has as much logical relation to the subject as the uncalled-for comment of the Chicago Department of Health concerning impure food.

SENSIBLE SANITARY MEASURES ON THE ISTHMUS.

For the steady progress in bettering health conditions at the Isthmus, Colonel Gorgas deserves great credit. On January 16, he reported that there was no quarantinable disease of any kind. During December there was but one case of yellow fever on the Isthmus. The morbidity continued very low, the rate being 19 to the 1,000. The heaviest death rate was due to pneumonia among the negroes, who do not use the precautions that white men exercise. The excellent report is an effective answer to the recent severe criticisms by Poultney Bigelow in the *Independent.* This correspondent criticized the insanitary location of Colon over a swamp, the poor houses, poor arrangements for disposing of night soil, etc., and called attention to the "absurd" system of sanitation which pays so much attention to mosquito work and fumigation. In reply to all such criticisms, Colonel Gorgas simply calls attention to the fact that the Sanitary Department on the Isthmus was not established to demonstrate any theory of disease. "We came for a practicable purpose," he says, "to decrease disease as much as possible. The 'absurd measures' have certainly so far accomplished this result. The facts stand forth that at present we have not a single case of yellow fever on the Isthmus, and during the whole month of December had only one; that malaria has been brought so well under control that our total sick rate is as small as that of any considerable body of men working anywhere in the United States. This writer, Mr. Bigelow, judges us by a sanitary standard of ten years ago and as applied to the temperate zones. He is apparently unaware that recently acquired knowledge has entirely revolutionized tropical sanitation. Our knowledge and experience in tropical sanitation have shown us that if every house in Colon had been supplied with modern plumbing and the buildings themselves had been well-built Philadelphia cottages, and we at the same time had had uncovered cisterns and water barrels, we would by this time have lost half our non-immune force from yellow fever. But if we look after the cisterns and water barrels and take the appropriate measures with regard to the sick from yellow fever, it is of very little importance whether we have a modern water closet or the more primitive pit." Colonel Gorgas goes on to say that what they are after is to get rid of yellow fever and to make the Isthmus inhabitable. In this he is certainly succeeding.

LIFE-SAVING PRECAUTIONS AGAINST THEATER FIRES.

Following the terrible Iroquois theater fire in Chicago, we commented on the experimental theater which was prepared in Vienna to test various safety devices. Consul-General Rublee of Vienna has just made a report on the tests made with this model. As nearly as possible exact reproductions were made of the conditions existing in actual theaters and old theatrical scenery and hangings were used, saturated with kerosene. Some of the conclusions were as follows: The most effective means of reducing the danger to the audience is to provide means for the escape of the dangerous gases and smoke through ventilators on the roof of the stage. When ventilators of sufficient size were opened, automatically or

otherwise, the fire was, to a great extent, confined to the stage, and a draft was caused from the audience room onto the stage, but when the ventilators were closed the auditorium was filled with gases, smoke and flames so speedily that the lives of many spectators would be imperiled. Further, in the latter case, the movement of the iron curtain was frequently interfered with by the pressure of gases from the stage so that it proved inadequate for protection. This latter point seems to us a very important one, in view of the great dependence now placed on the steel curtains. If a severe fire would cause this curtain to bind, or would otherwise prevent its descending promptly, another terrible fire may result, because the use of inflammable scenery has not been discontinued. These experiments further revealed the striking fact that when the ventilators were covered by wire screens the charred paper, fragments of scenery, etc., carried up by the draught, lodged against these wire screens and, to a greater or less extent, closed them, thus rendering the ventilators valueless. In this connection attention is called to the building law of New York City, which requires that underneath all of these smoke vents wire netting must be stretched. These points become very important when one realizes their relation to the present provisions in theaters in the United States.

Medical News

ILLINOIS.

Births Double Deaths.—The annual report of the State Board of Health shows about 65,000 deaths and 150,000 births in Illinois during 1905. The males born exceeded the females by about 6,000.

Winnebago County Election.—At the annual meeting of the Winnebago County Medical Society, held in Rockford, January 9, Dr. Thomas H. Culhane was elected president; Dr. Robert C. Bourland, vice-president, and Dr. William E. Park, secretary and treasurer, all of Rockford.

State Board of Health.—At the twenty-ninth annual meeting of the State Board of Health, held at Springfield, January 25, the following officers were elected: Dr. George W. Webster, Chicago, president, and Dr. James A. Egan, Springfield, secretary and treasurer. Dr. Egan succeeds Dr. Peter H. Wessel, Moline, as treasurer.

Personal.—Dr. Mills F. Clark, assistant at the Illinois Hospital for the Insane, Elgin, has resigned and will settle in Massachusetts.——Dr. and Mrs. James W. Pettit, Ottawa, have gone to Texas for a visit.——Dr. Patrick H. Kelly, Chillicothe, was thrown from his buggy, January 19, dislocating his right arm at the elbow.——Dr. and Mrs. Matthew M. Hill, Taylorville, are recovering from a severe attack of ptomain poisoning.

Communicable Diseases.—Three cases of smallpox were discovered at the Illinois Central Hospital for the Insane, Jacksonville, January 27. Vaccination of the 1,200 inmates and 500 employés has been ordered and strict quarantine has been instituted.——Suspected smallpox has caused the State Board of Health to send an inspector to Hillsboro, Granite City and Venice.——Bloomington now has 10 families under quarantine for diphtheria.

Chicago.

Kirmess Nets Thousands.—The Cribside Kirmess realized about $25,000 for the Children's Hospital.

Personal.—Dr. David J. Doherty leaves for Manila, via Spain, February 20.——Dr. Henry W. Cheney and family have left for Vienna.——Dr. and Mrs. W. J. Class have reached Paducah, en route by gasoline launch to Chattanooga.——Dr. Harrison L. Mettler has resigned as medical inspector of the Department of Health.

Deaths of the Week.—The 504 deaths reported are 107 fewer than those of the previous week and 54 fewer than those of the corresponding week of 1905. On the basis of population the annual rate of the week is 16.7, and 12.2 per cent. lower than for the previous week and for the corresponding week of last year respectively. Bright's disease, 4 less; bronchitis, 10 les; consumption, 8 less; cancer, 14 less; heart disease, 8 less; influenza, 3 less; pneumonia, 25 less, and scarlet fever, 2 less, are among the important causes of death showing gratifying reductions. Only diphtheria, 6 more; acute intestinal diseases, 8 more; scarlet fever, 1, and typhoid fever, 2 more, show any increase. The death rate was equivalent to 12.82 per 1,000. Pneumonia caused 86 deaths and consumption 61.

INDIANA.

Beaven Again Fined.—Leslie Beaven, an osteopath of Vincennes, who was arrested several months ago, tried and convicted of practicing medicine without a license and fined, was again tried for a similar offense in the Daviess County Court at Washington, January 12, and fined $25 and costs.

Memorial Hospital Staff.—At the annual meeting of the trustees of Reid Memorial Hospital, Richmond, the following medical staff was named: Drs. George H. Grant, David W. Stevenson, Allan L. Bramkamp, Charles S. Bond, Melville F. Johnston, Harry H. Weist, John M. Wampler, Isaac S. Harold, Stephen C. Markley, Joseph M. Bulla, Charles Marvel, T. Henry Davis and Joseph M. Thurston.

A Nonagenarian.—Dr. William H. Wishard, Indianapolis, celebrated his ninetieth birthday anniversary January 17. An informal reception was given which was attended by many members of the Indianapolis Medical Society. Dr. Wishard is one of the two surviving charter members of the State Medical Society. At the meeting of the society January 16 Dr. Frederick C. Heath, on behalf of Dr. William N. Wishard and other members of the family, presented an oil painting of the venerable physician to the society. On the evening of January 17 the family of Dr. Wishard gave a dinner to members of the profession and friends, at which about seventy were present.

Personal.—Dr. Albert H. Combs, Marion, has recovered from his recent illness.——Dr. and Mrs. Leo J. Weinstein, Terre Haute, have gone to Fort Collins, Colo., for six or eight weeks.——Dr. Schuyler F. Teaford, Paoli, has been appointed physician of Orange County.——Dr. Benjamin F. Whitmer, Goshen, expects to spend the winter in Pensacola, Fla.——Dr. Marcus H. Thomas, Huntington, sprained his knee while skating January 12.——Dr. S. K. Houser, Converse, has been reappointed health officer.——Dr. Guilford A. Mottier, Richmond, had a narrow escape January 6, when his buggy was struck by a switching freight train and demolished.——Dr. Charles Trueblood, Anderson, left for Oklahoma and New Mexico, January 14.——Dr. Thomas R. Barker has been appointed health officer of Danville.——Dr. Patrick G. Carlisle, Connersville, received severe scalp wounds during a windstorm January 15, when a large curved plate-glass window was blown from the fourth floor to the pavement, striking him as it fell.——Dr. A. P. Fitch, Lebanon, is seriously ill.

December Disease and Death.—Bronchitis and tonsillitis were almost equally prevalent in December and led the list of diseases. Pneumonia increased greatly over November. This is also true of influenza and rheumatism. Typhoid fever fell to fifth place in its area of prevalence. There were reported 112 cases of smallpox in 13 counties, with 1 death. In the corresponding month of last year there were 472 cases reported in 38 counties, with 8 deaths. Typhoid fever was reported in 53 counties. There were 2,657 deaths, corresponding to an annual death rate of 11.8 per 1,000. Certain important causes of death were as follows: Consumption, 336; typhoid fever, 66; diphtheria, 58; scarlet fever, 7; whooping cough, 9; pneumonia, 347; diarrheal diseases, 21; cerebrospinal meningitis, 40; influenza, 19; puerperal fever, 15; cancer, 90, and violence, 137. The cities show a death rate of 15.1 per 1,000 and the country a rate of 9.9. The death rate for Indianapolis was 15.6; Evansville, 15.1; Fort Wayne, 14.8; South Bend, 19.6; Terre Haute, 22.4, and Muncie, 10.7. Of the pneumonia deaths, numbering 347, 176 were males and 171 females. In the corresponding month last year there were 351 pneumonia deaths. Of the 137 deaths by violence, 5 were murders, 20 were suicides and 118 accidental. All of the murders were males, 4 being by gunshots and 1 not named. Of the suicides 13 were males and 7 females. Three males chose carbolic acid, 4 opium or morphin, 1 shooting, 2 hanging. Of the female suicides 4 chose carbolic acid, 2 cutting throat, 1 not named. Of the accidental deaths railroad injuries caused 24; street cars, 2; burns and scalds, 24; crushing injuries, 18; gunshot wounds, 12; falls, 8, and drowning, 3.

KENTUCKY.

Jury Disagreed.—Dr. Hugh R. Manning sued the Louisville Railroad Company on account of injuries done himself and automobile, when it collided with a car, and in a trial of the case in Judge Field's court the jury was dismissed because it could not agree.

Against Tuberculosis.—The Kentucky Anti-Tuberculosis Association held its annual meeting on January 8 and elected the following officers: W. C. Nones, president; the Rev. Dr. W. H. Ramsay and Dr. Jacob A. Flexner, vice-presidents; Theodore Harris, treasurer; Thomas D. Osborne, secretary. President Nones presented his annual report and stated that so far about $9,000 of the necessary $25,000 for the erection of the sanitarium had been secured by the association.

Legislation Proposed.—Among the flood of bills introduced in the state legislature of interest to the physicians are the following: One required that formulas of all proprietary medicines be published; appropriating $110,000 for the extension of the State Feeble-minded Institute; appropriating $23,000 for the Kentucky School for the Deaf, which contemplates improvement in the dining-room, painting and plumbing, new floors, steam pipe tunnels, electric wiring and teachers' salaries; $35,000 to build additions to the Western Kentucky Asylum.

MARYLAND.

Anti-Tuberculosis Association Organized.—A meeting was held at State House in Annapolis January 23 for the purpose of organizing an Anne Arundel County Branch of the Maryland Association for the Prevention and Relief of Tuberculosis. Addresses were delivered by Drs. William H. Welch, William S. Thayer and John S. Fulton, and Senator J. Charles Linthicum. Dr. Louis B. Henkel, Jr., was elected secretary of the new branch.

Hospital Report.—The fourteenth annual report of the Sheppard and Enoch Pratt Hospital shows that 215 patients were treated during the year. More than 16 per cent. of them were free, and 37 per cent. show an average paid of only $2.68 per week. There has been a marked increase in the number of patients discharged as recovered or much improved. There were 7 deaths, all male. Dr. James H. Randolph, clinical assistant, has accepted a position as assistant physician to the State Asylum for the Insane at Chattahoochie, Fla. Dr. Charles M. Franklin, a member of the staff, has resigned to entire private practice in Baltimore.

Baltimore.

Abortionist Convicted.—A woman convicted of performing a criminal operation was sentenced to pay a fine of $1,000.

Disease and Death.—During last week there were 21 deaths from consumption and 36 from pneumonia. Whooping cough and diphtheria are prevalent.

Asks Appropriation.—The faculty of physics of the University of Maryland has asked the legislature for a centennial appropriation of $100,000 for the University Hospital.

Needs of Johns Hopkins.—President Remsen estimates that $750,000 to $1,000,000 are needed for the erection of seven or eight buildings, in order that the Johns Hopkins University may remove to Homewood, its new suburban site.

Crusade Against Tuberculosis.—A big meeting, under the joint auspices of the Laennec Society and the Maryland Tuberculosis Association, was held to stir up interest in the crusade against tuberculosis, on January 25, with Dr. William Osler presiding.

Smallpox.—Forty cases of smallpox have been found in Baltimore this winter, 32 of which developed in the city, 3 in the county and 5 at quarantine. The sufferers were all negroes except one family. The contagion in all cases was traced to a negro who came to Baltimore from Virginia. There were no deaths.

Personal.—Dr. Louis McLane Tiffany has gone on a hunting and fishing trip to the west coast of Florida.——Dr. Dudley Williams had his shoulder dislocated in an automobile accident, January 25.——Dr. Joseph Erlanger, associate professor of physiology in Johns Hopkins University, has been appointed professor of physiology in the University of Wisconsin, Madison.

Rare Books for Johns Hopkins Library.—Mr. Francis M. Jenks, a member of the board of trustees of the Johns Hopkins Hospital, has presented to the university library a rare collection of medical works, said to be of great value, on human monstrosities, deformities, etc. The collection consists of 934 books and pamphlets, formerly the property of Professor Ahlfeld, privy councilor of Marburg, Germany.

Officers of Medical and Surgical Association.—The following officers have been elected for the year by the Baltimore Medical and Surgical Association: President, Dr. A. C. Harrison; vice-presidents, Drs. John T. King and John Neff; secretary, Dr. J. N. Reik; treasurer, Dr. William Caspari, Jr.; executive committee, Drs. C. Urban Smith, E. L. Whitney, J. M. H. Rowland; committee of honor, Drs. W. B. Perry, Randolph Winslow, David Streett.

Dispensary News.—At the Northeastern Dispensary 8,366 patients were treated during the year; 20,006 visits were recorded; 228 eye, 128 ear and 57 nose and throat operations were performed. Officers were elected as follows: President, Dr. Arthur Wegefarth; vice-president, Dr. J. Edwin Hengst; secretary, Dr. A. D. McConachie.——The South Baltimore Eye, Ear, Nose and Throat Hospital reports 1,391 treated during the year. The hospital has 20 beds.

Loving Cup for Dr. Hurd.—The members of the American Medico-Psychological Association, January 26, presented to Dr. Henry M. Hurd, superintendent of Johns Hopkins Hospital, a handsome loving cup in appreciation of his long and faithful service in the affairs of the association. Dr. Charles G. Hill made the presentation speech. The committee which selected the cup consisted of Drs. Charles W. Page, Massachusetts; P. L. Murphy, North Carolina, and C. B. Burd, Michigan.

Annual Meeting of Alumni Association.—The General Alumni Association of the University of Maryland held its annual meeting, December 25. The address was by Dr. James Carroll of George Washington University, and his subject was "History of Yellow Fever in Baltimore." The subject has never been dealt with before, and Dr. Carroll's paper, being by an expert, is a valuable contribution to the history of American medicine and of yellow fever. Dr. George A. Fleming was elected chairman of the executive committee, and Dr. E. F. Cordell, chairman of the endowment committee.

MASSACHUSETTS.

Murphy in Boston.—The Boston Medical Library meeting of January 24 was addressed by Dr. John B. Murphy, Chicago, on "Reunion of Nerves; Transplantation of Nerves; Resection of the Spinal Cord; Regeneration of the Trophic, Sensory, Motor and Mixed Nerves, and Conditions which Govern the Re-establishment of Conductivity; Prognosis in Nerve and Spinal Cord Suture."

Proposed Legislation for Nurses.—A bill has been introduced in the legislature providing for the establishment of a board of five person as a board of registration in nursing and similar to the boards regulating medicine, dentistry and pharmacy. A similar bill was defeated last year because it failed to recognize the value of training in the smaller hospitals or for shorter periods than that required in the largest hospitals in the state.

Bill to Regulate Malpractice.—Boston's new district attorney, John B. Moran, has filed with the legislature a new bill to further regulate malpractice. Its chief provisions are:

If a physician or nurse knows or has reason to believe that a person whom he is called to visit or to attend is suffering from, or has within the 60 days preceding suffered from an illegal operation, such physician and such nurse shall immediately give notice thereof in writing over his or her signature, to the district attorney for the district in which such visit is made or such attendance rendered, and every such physician shall, in a book kept by him for that purpose, make full and complete entries of the condition, from time to time, of such person visited or attended, and of his treatment of such person and of the names and description of all persons caring for, attending or assisting in caring for or attending such person, and shall from time to time, upon request of the district attorney of the district in which such physician has an office or in which he resides, submit said book to said district attorney for inspection.

A physician or nurse who refuses or neglects to comply with the requirements of this section shall be punished by imprisonment in the state prison for not less than three nor more than five years. If such physician or nurse be a woman, the imprisonment shall be in the county jail or in the reformatory for women.

All buildings, places or tenements which are resorted to for the purpose of criminal surgery, or which are used for that purpose, shall be deemed common nuisances.

Whoever keeps or maintains or assists in keeping or maintaining such a common nuisance shall be punished by imprisonment for not less than three nor more than five years in the state prison, county jail or reformatory for women.

NEW YORK.

Typhoid at Niagara.—A large number of typhoid cases is reported from Niagara Falls, N. Y.

For Nassau Hospital.—Mrs. William K. Vanderbilt has presented this institution, which is located on Long Island, with a morgue which is complete in every detail.

Epidemic in Asylum.—An epidemic of scarlet fever has broken out in St. Christopher's Home at Dobbs Ferry. The trustees and physicians are of the opinion that the epidemic was due to germs lurking in the cast-off clothing sent to the institution. There are 12 cases at present. One hundred and eighty children are in the institution.

Gift to Tuberculosis Sanatorium.—The sum of $23,000 is required to meet bonds of the Stony Wold Sanatorium which mature on March 1, and J. Pierpont Morgan has promised that if the board of directors will raise this sum he will add $10,000. Two other gifts of $10,000 have also been reported, one by Mrs. Edward Harkness for the endowment of a bed and the other from a friend who prefers to remain anonymous. There were many other gifts of smaller proportions.

Hospital for Crippled Children.—The fifth annual report of the New York State Hospital for the Care of Crippled and Deformed Children, which removed from Tarrytown to Haverstraw on April 1, 1905, announces the institution in a flourishing condition. An appropriation of $50,000 which became available in the spring of 1905, made alterations in the buildings possible, and the number of beds was increased from 35 to 45. The report states that it is remarkable how rapidly patients suffering from tuberculous diseases of the joints improve under modern treatment in the fresh air of Rockland County. A friend of the hospital has contributed $500 for the transportation of eligible indigent patients living in rural districts. Fifty-six patients were treated last year, and 44 patients are now in the hospital.

Albany News.—A bill has been introduced into the assembly requiring the labeling of all patent medicines and poisonous articles. It provides a penalty of from $10 to $100 for any druggist who sells poisonous articles and materials not so labeled.——New York City wants authority to spend $2,500,000 for the purpose of establishing a seashore colony. The colony is intended for the reception of sick and convalescent patients in the city hospitals. It is to be in charge of the Health Department, the president of Bellevue and the Allied Hospitals, and the commissioner of charities, which shall constitute a board of supervision. Provision for the maintenance of the colony is made in the budget and $250,000 is appropriated for the coming year. No insane person shall be received in the colony.——The state comptroller has paid over to Isaac V. Baker the $40,000 which the state agreed to pay for his farm as the site of a new state hospital. The matter of payment has been pending on account of the criticism which the selection of this property as the site for a hospital created.——A bill has been introduced into the legislature imposing a tax of $2 a year on dogs and transferring the dog licensing power from the Society for the Prevention of Cruelty to Animals to the Health Department. Should the bill become a law the society will lose its chief source of income, amounting last year to $65,000. It is claimed that the society has been mismanaged and is of little use and, again, that the receiving of licenses by any private institution is unconstitutional.

Centennial Meeting.—The centennial meeting of the Medical Society of the State of New York was held in Albany, January 30 and 31, and February 1. For the first time in many years the medical profession of the state met as a united body. Dr. Joseph D. Bryant, New York City, presided, and Hon. Grover Cleveland made the opening address, in which he discussed from the viewpoint of the layman the relations between the physician and his patient. The reorganized society elected the following officers: President, Dr. Joseph D. Bryant, New York City; vice-presidents, Dr. Herman R. Ainsworth, Addison; Dr. Frederick C. Curtis, Albany, and Dr. Jones, Buffalo; secretary, Dr. Wisner R. Townsend, New York City; treasurer, Dr. Alexander Lambert, New York; delegates to the American Medical Association, for two years, Drs. Everard D. Ferguson, Troy; Wisner R. Townsend, New York City; E. Eliot Harris, New York City; Joseph W. Grosvenor, Buffalo; Abraham Jacobi, New York City; Albert Vander Veer, Albany; delegates for one year, Drs. Henry L. Elsner, Syracuse; George R. Fowler, Brooklyn; Hamilton D. Wey, Elmira; William S. Ely, Rochester; Floyd M. Crandall, New York City, and Roswell Park, Buffalo; and editor of the state journal, Dr. James P. Warbasse, Brooklyn. The house of delegates of the old state society was continued for another year.

Buffalo.

City Bacteriologist's Salary Raised.—The Board of Health of Buffalo has decided to raise the salary of the city bacteriologist from $1,500 to $1,800 a year and the salary of the assistant bacteriologist from $1,200 to $1,500.

Fair and Ball for German Hospital.—The fair for the benefit of the German Hospital netted between $25,000 and $30,000 for the hospital. A charity ball for the benefit of the German Hospital will be held at City Convention Hall, February 20.

Fine for Negligence Revoked.—The fine of $10 and costs entered by the Health Department of Buffalo against Dr. F. M. Rich has been revoked by the board of aldermen, it having been proven conclusively that Dr. Rich was in no way negligent in not reporting a case of contagious disease.

Physicians Endorse University Extension.—The physicians of Buffalo held a meeting January 19 at the University Club for the purpose of giving an impetus to the university extension movement in creating a college of liberal arts in addition to the professional schools now existing. The physicians responded loyally to the call for subscriptions, and $20,000 was subscribed for this purpose, with the possibility of raising double that amount. It is especially gratifying that the medical profession should have been among the first to respond so liberally for such a high purpose, and no doubt the example set by the medical profession will influence the legal, dental and other professions to contribute their quota for the endowment and maintenance of a school of liberal arts.

New York City.

New York Academy of Medicine.—The section on obstetrics elected the following officers: Chairman, Dr. Arnold Sturmdorf; secretary, Dr. Howard C. Taylor.

Estate for Hospital Society.—The German Hospital Society of Brooklyn, by an interlocutory decision handed down by the Supreme Court, receives the greater part of the estate of the late Mrs. Edward N. Rosenbaum, which is estimated at $75,000.

Lee to Lecture on Fatigue.—The seventh lecture in the Harvey Society course will be delivered by Prof. Frederick S. Lee of Columbia University at the New York Academy of Medicine on Saturday, February 3, at 8:30 p. m. Subject, "Fatigue."

Appendicitis.—Dr. Andrew J. McCosh was operated on for appendicitis January 26. The appendix was removed and two days later the patient was reported as doing well and in no danger.——Dr. George R. Fowler, Brooklyn, has been operated on for appendicitis. He is very ill, but is doing well.

For Clean Street Cars.—Borough President Coler will appoint a committee of 100 whose aim will be to compel the Brooklyn Rapid Transit Company to give better service and to keep its cars clean and warm. All the boards of trade will join with the committee to aid in carrying out the crusade.

Fire in Private Hospital.—A fire occurred in the private sanatorium conducted by Miss Anna L. Alston on the morning of January 25. By the unusual coolness and quick work of the nurses a number of surgical patients were carried from the top floor to the main floor in a very short time. The loss to the hospital was about $3,000.

Plan to House Municipal Departments.—Comptroller Metz will submit a proposition to the board of estimate for the erection of a municipal building on a site opposite Cooper Square belonging to the city, which will house the health, tenement-house buildings and corrections departments. The present scattered locations of these related departments is a great inconvenience.

To Help Sick Children.—The Speedway Country Homes Society, whose work is the placing of sick children from the tenements in private country homes, held its annual meeting on January 25. It is intended to build some homes for tuberculous children, and for this purpose Mrs. Andrew Carnegie has promised $10,000 and Miss Helen Gould announces that she will build one such home.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending January 20, 1,487 cases of measles, with 17 deaths; 448 cases of tuberculosis, with 159 deaths; 359 cases of diphtheria and croup, with 46 deaths; 237 cases of scarlet fever, with 10 deaths; 35 cases of typhoid fever, with 5 deaths; 28 cases of cerebrospinal meningitis, with 15 deaths; and 205 cases of varicella. A total of 2,799 cases and 252 deaths.

Personal.—Dr. Henry Dwight Chapin has been appointed medical director of the Speedway Country Homes Society.——Dr. Thomas R. Maxfield of Brooklyn has been appointed acting assistant sanitary superintendent of the department in Brooklyn by the Board of Health in place of Dr. T. Lewis Fogarty, who was removed by the board.——Dr. J. P. Murray of Brooklyn was appointed medical examiner to the finance department at a salary of $2,500.

Hot Winter Healthful.—It was announced at the Board of Health that the warm weather had materially reduced the death rate in this city. There were 45 less deaths for the week ended January 20 than for the corresponding week of last year. All pulmonary diseases showed a noticeable decrease. During the week ended January 27 there was an increase in the number of deaths from influenza, and the fear is expressed that this affection is becoming epidemic.

New West Side Clinic.—A clinic exclusively for women and children will soon be opened somewhere on the West Side under the supervision of Mrs. Harry Wallerstein, a graduate of the New York Medical College and Hospital for Women. Its work as proposed will be largely preventative, as those will be cared for who are not sick enough to go to a hospital. When necessary, physicians from the clinic will visit patients in their homes. There is at present $1,500 in the treasury.

OHIO.

Medical Club Election.—The Canton Medical Club has elected the following officers: President, Dr. Harry M. Schuffell; vice-president, Dr. Lauren E. Flickinger; recording secretary, Dr. Clara E. Fraunfelter, and censors, Drs. Frank E. Hart, George A. Kelley and J. Frank Kahler.

Alumni Election.—The annual election of officers of the Cincinnati Chapter of the Ohio Medical College Alumni was held at the residence of Dr. John Ranley, Cincinnati, January 17. The following were chosen: President, Dr. William Gillespie; vice-president, Dr. Earl Harlan; secretary, Dr. Charles Langsdale, and treasurer, Dr. B. M. Weekley.

Personal.—Dr. James C. Reinhart has been appointed health officer of Toledo, Ohio, vice Dr. Walter W. Brand.——Dr. George Dock, Ann Arbor, Mich., has been made honorary member of the Academy of Medicine of Toledo and Lucas County, Ohio.——Dr. Otto Geier, of the medical staff of Christ's Hospital, Cincinnati, was operated on at that institution January 21, for appendicitis.

Stark County Medical Society.—At the annual meeting of this society the following officers were elected: Dr. Alonzo B. Walker, Canton, president; Dr. Frank W. Gavin, Canton, corresponding secretary; Dr. George F. Zinninger, Canton, treasurer, and Drs. Harry P. Pomerene, Canton; Jacob F. Marchand, Canton; William C. Steele, New Berlin; Leon B. Santee, Marlboro; Neal W. Culbertson, Massillon, and Daniel W. Gans, Massillon, executive committee.

PENNSYLVANIA.

Bequest.—By the will of Mrs. Annie Hartmyer, St. Joseph's Hospital, Lancaster, receives $500.

Consumption Hospital in Pittsburg.—A sanitarium for the treatment of pulmonary tuberculosis is to be established in Pittsburg, at the former residence of William McConway, on Herron Hill, under the name of the Pittsburg Sanitarium. Mr. McConway has agreed to give the free use of his former residence and ground for a stated period, and if the hospital proves a success it is understood that he will deed it over to the corporation.

Pennsylvania's Relief Report.—The monthly report of the Employés' Relief Fund for the Pennsylvania Railroad Company's lines east of Pittsburg and Erie, shows that the payments of benefits to its members and families of deceased members for December amounted to $134,038.30, of which $52,882.20 was on account of death and $81,156.10 on account of disablement by sickness and accident. The payments thus far are stated to have amounted in the aggregate to $14,335,680.87, of which $5,891,377.34 was on account of death claims and $8,444,303.35 on account of disablement.

Medical Society Sustains Dr. Dixon.—At a meeting of the Clinton County Medical Society, held in Lock Haven, January 21, the following resolution was unanimously adopted:

WHEREAS, There has been some opposition in Lock Haven and throughout Clinton County to the efforts of Dr. Samuel G. Dixon, commissioner of health of Pennsylvania, to enforce the vaccination laws of 1895, the members of the Clinton County Medical Society desire to place themselves on record as upholding Dr. Dixon in his efforts to enforce the vaccination laws of Pennsylvania. We unanimously agree that the only way to prevent smallpox is by vaccination, and those who try to prevent and bring it into contempt only show their ignorance and have never been treated or had anything to do with smallpox, otherwise they would not try to defeat the only prevention of this loathsome disease.

Medical Officers Elected.—At the annual meeting of the Beaver County Medical Society, January 11, the following officers were elected: President, Dr. James F. Elder, New Brighton; vice-presidents, Drs. W. Winfield Simpson, New Brighton, and George Y. Boal, Baden; secretary, Dr. James K. White, New Brighton, and treasurer, Dr. H. M. Shallenberger, Rochester.——At the annual meeting of the Delaware County Medical Society, January 4, the following officers were elected for the year: President, Dr. M. P. Dickeson, Media; vice-president, Dr. Jonathan L. Forwood, Chester; treasurer, Dr. D. W. Jeffries, and secretary, Dr. Linnaeus S. Fussel, Media.——At the annual meeting of the Elk County Medical Society, January 12, the following officers were elected: President, Dr. Elmer E. Livingston, Johnsonburg; vice-presidents, Drs. Joseph G. Flynn, Ridgway, and P. W. Leitsell, Portland Mills; secretary, Dr. M. M. Rankin, Ridgway, and treasurer, Dr. Alfred Muilhaupt, St. Marys.——At the annual meeting of the Montgomery County Medical Society, January 10, the following officers were elected: President, Dr. Elmer G. Krieble, Worcester; vice-presidents, Drs. J. Q. Thomas and J. Howard Seiple, Center Square; recording secretary, Dr. Harry H. Whitcomb, Center Square; corresponding secretary, Dr. Joseph K. Weaver, Norristown, and treasurer, Dr. S. Nelson Wiley, Norristown.——At the election of the Pittsburg Academy of Medicine Dr. Edward H. Small was elected president; Dr. Glendon E. Curry, vice-president, and Dr. Thomas G. Simonton, member of the committee on scientific program.

Philadelphia.

Disease Closes Schools.—At the direction of the officers of the Bureau of Health the Cambria public school was closed for disinfection January 25, seven of the pupils being ill with diphtheria; three schools were also closed by the Board of Health in West Philadelphia on account of an epidemic of measles among the children of that section.

Personal.—Dr. and Mrs. George F. Baker sailed for Europe January 20.——Dr. Bernard Berens was elected president of the Athletic Club of Philadelphia, January 23.——Dr. S. Weir Mitchell read his poem: "Francis Drake, a Tragedy of the Sea," before the Pennsylvania Fellowship of Fine Arts, in the Academy of Fine Arts, January 22.——Dr. A. Victoria S. Haensler and Dr. and Mrs. L. Webster Fox sailed for Port Antonio, Jamaica, January 25.——Dr. Charles K. Mills has been appointed consulting physician to the Orthopedic Hospital and Infirmary for Nervous Diseases.

Bequests.—The executors and trustees of the Simon Muhr estate have made additional distribution of $9,000, $1,500 of which goes to the Jewish Hospital Association, $300 to the Pennsylvania Hospital, $300 to the Jefferson Medical College, $300 to the Philadelphia Home for Incurables, $150 to the Philadelphia Polyclinic Hospital, $150 to the Philadelphia Lying-in Hospital, $120 to the Women's Hospital of Philadelphia, $120 to the Children's Hospital, and $120 to the West Philadelphia Hospital for Women.——In adjudicating the estate of Harriet Richards the Orphans' Court awarded a bequest of $10,000 to establish free beds in one or more hospitals.

The Cost of Tuberculosis to the State.—At the tuberculosis exhibition, January 24, Dr. Leonard Pearson, state veterinarian, in discussing state control of tuberculosis, said that deaths and illness from tuberculosis in Pennsylvania is responsible for a loss of $24,000,000 each year. Estimating that the average citizen is worth to the state at least $1,000, and that there are 12,000 deaths annually from the white plague, Dr. Pearson says the loss, therefore, from this would be $12,000,000. In addition to this loss of earning power during the two or three years' illness and the increased cost or maintenance during this period is probably equal to the direct loss from death, making the total loss to the state $24,000,000. He said that there are at all times 25,000 to 30,000 persons who are ill from tuberculosis in Pennsylvania. The state should provide sanatoria for consumptives, not merely for their own benefit, but for the protection of uninfected citizens. The importance of this is shown by the fact that three or four people contract the disease from every person who dies of it.

Portrait of John Morgan for University.—A large oil painting of John Morgan, founder of the medical school of the University of Pennsylvania, has just been added to the large collection of portraits owned by the university and will occupy a position on the walls of Houston Hall. The portrait is the gift of the Hon. David T. Watson, Pittsburg, who is a descendant of John Morgan, the founder of the medical department of the university, the first medical school in America. The tablet fastened to the frame is inscribed as follows: "Dr. John Morgan, born 1735, died 1789. Copy of original by Angelica Kauffman, in Rome, 1763-64." Dr. Morgan was born in Philadelphia in 1735, and was graduated in 1757 with the first class of the College of Philadelphia, which later became the University of Pennsylvania. He subsequently studied medicine in Philadelphia, later in Edinburgh, Paris and Padua, obtaining

his professional degree from Edinburgh in 1763. He became the first teacher of medicine in the College of Philadelphia, and with William Shippen organized the medical school of the University of Pennsylvania. He was one of the early members of the American Philosophical Society, and also the first general director of the medical service of the Continental Army.

Health Report.—The total number of deaths reported for the week was 583. This is a decrease of 50 from the number reported last week, and an increase of 4 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 17; measles, 15; whooping cough, 4; diphtheria, 12; meningitis, 4; tuberculosis, 70; cancer, 24; apoplexy, 27; heart disease, 49; acute respiratory disease, 121; enteritis, 31; Bright's disease, 45; premature birth, 9; old age, 14; suicide, 3; accidents, 29, and marasmus, 6. There were 476 cases of contagious disease reported, with 29 deaths, as compared with 373 cases and 37 deaths for the previous week. In view of the epidemic of measles the health authorities have decided to place yellow placards on houses in which there is a patient suffering from this malady. By this means the public will be warned and it is hoped the prevalence of the disease will be diminished. There were 718 cases of measles reported last week. The yellow placard will also be placed on houses in which there are patients suffering from chickenpox. Sixty-three cases of this disease were reported for the week as compared with 65 reported for the previous week.

VIRGINIA.

Typhoid fever of a very malignant type has become epidemic in certain parts of Frederick County.

Bequest.—The late Emanuel Millhiser left by his will $1,000 to the Sheltering Arms Hospital of Richmond.

Personal.—Dr. Aaron Jeffery is recovering after a severe fracture of the leg, caused by being thrown from his carriage. ——Dr. D. D. Wilcox, Petersburg, while horseback riding, was thrown from his horse and had his leg broken.

Election.—At the annual meeting of the Newport News Medical Society the following officers were elected: Dr. Richard T. Styll, president; Dr. Thomas J. Sims, vice-president, and Dr. Anna M. Randolph, secretary and treasurer.

Must Not Do Contract Work.—The Petersburg Medical Faculty has decided that a member of that body can not, without violating the rules of the faculty, make an agreement with a secret fraternal order to give medical attendance to its members at contract prices.

Smallpox.—For several weeks past the citizens of South Hill and vicinity have been in much doubt whether a prevailing disease was chickenpox or smallpox. An expert from the State Board of Health has just visited the town and diagnoses the trouble as a mild form of smallpox. Quarantine and sanitary measures will be instituted at once.

GENERAL.

Typhoid Fever in Mexico.—An epidemic of typhoid fever in the City of Mexico has assumed such proportions that a meeting of the principal physicians, attended by President Diaz and Governor Escandon, has been held to discuss energetic means of stamping it out.

Isthmus Health Excellent.—The sanitary report for the Canal Zone for the month of December shows that the health conditions remain excellent. During the month there was only one case of yellow fever, that of an employé of the commission who was taken sick at Colon, December 11. In the city of Panama the last case occurred November 11. At present there is on hand no quarantinable disease of any kind. The sick rate of the employés continues very low. With a force of about 22,000 there were on the average during the month 427 in the hospital. This would give a sick rate of slightly over 19 a 1,000. While the sick rate is very small, the death rate has been large. This was due to the large number of fatal cases of pneumonia occurring among the negro employés. Of the 74 deaths, 33 were due to pneumonia, and all of these cases of pneumonia occurred among the negroes. Leaving out these 33 cases of pneumonia, the death rate for the month would be at the rate of about 22 a 1,000 a year. The white employés suffer much less than the negroes. Among the whites there were only 4 deaths, and of these only 2 were from disease. This would give an annual death rate among the whites of only 8 each 1,000. The death rate among the negroes, on the other hand, would give an annual death rate of about 44 each 1,000. Colonel Gorgas reports that it is difficult for him to account for this great difference. Of course, the whites, on the average, take very much better sanitary care of themselves, sleep under mosquito bars, take quinin, and observe other sanitary regulations to a much greater extent than do the negroes.

CANADA.

Vital Statistics.—During the last half of 1905 Winnipeg had 1,096 births, 1,064 deaths, and 837 marriages.——Peterborough, Ont., with a population of 14,500, had 224 deaths in 1905, 23 less than in 1904. It is the lowest death rate of any Canadian city.——The total number of deaths in Ontario in December, 1905, was 2,116.

Prevalent Diseases.—In Ontario, during December, 1905, 1,289 cases of smallpox were reported from 20 municipalities; 172 deaths were reported from consumption, and there were 152 cases of typhoid fever, with 45 deaths.——There is an epidemic of smallpox in the village of St. Cyrille, near Drummondville, P. Q., no less than 150 cases having been reported.

Personal.—Dr. G. A. Charlton, Regina, has been appointed bacteriologist of the department of agriculture, for the province of Saskatchewan.——Dr. George R. McDonagh, Toronto, has gone to Southern California for two months.——Dr. C. M. Murray, Toronto, has gone to Europe.——Dr. S. H. Westman, Toronto, is in that city for a month, before he returns to England for further postgraduate work. He has spent the last two years in London.——Dr. Colin Campbell, late house surgeon at Moorfields, London, Eng., has returned to Toronto, and will probably establish himself as an oculist in that city.——Dr. G. W. Badgerow, Toronto, who for six years has been doing postgraduate work in London, after a brief visit to Toronto, has returned to England.——Dr. R. R. Hopkins has been appointed medical health officer of Toronto Junction, Ont., vice Dr. H. Mason, resigned.

Hospital and College News.—Galt, Ont., will establish a cottage hospital for incurable consumptives, the first of its kind in Canada, and will appeal to the Ontario government for financial aid.——The new Manitoba Medical College was formally opened January 26.——The woman's auxiliary in connection with the Winnipeg General Hospital, in 1905 collected over $3,700 for that institution.——The Toronto General Hospital fund continues to grow and now amounts to $1,101,046. ——Dr. John Noble, Toronto, has been elected chairman of the Toronto Board of Health, and has revived the question of Toronto building a consumption hospital, which he strongly favors. Dr. Sheard, the medical health officer, who is at present in New York, as the guest of the Canadian Club of that city, thinks there should be no undue haste in the erection of such a building, as the present hospitals of Toronto are doing very well in the matter of caring for this class of the sick.

Canada's Public Health Report.—Dr. Montizambert, director-general of public health for Canada, has his annual report for 1905 ready for presentation to parliament at the meeting of that body in the immediate future. He states that owing to the fact that there is no smallpox in those states bordering on Canada, port officers and inspectors have been withdrawn. During 1905 careful inspection has been carried on both on the Atlantic and Pacific, special inspection of vessels from San Francisco having been discontinued on Jan. 1, 1906. Dr. Montizambert again emphasizes the important need of a dominion department of public health under a responsible minister of the crown, so that all matters affecting the health of the dominion might be consolidated under one head. The leper lazaretto at Tracadie, N. B., is also referred to in his report. There are now on the books of that institution 17 patients, 10 males and 7 females. There were no deaths during the year. Two new patients were admitted during 1905. It is said that good results continue to follow the treatment by Chaulmoogra oil and strychnia, with external applications of creolin. One patient was discharged cured, but ordered to report for inspection from time to time.

Half Rates to British Medical.—Arrangements are announced for the British Medical Association meeting in Toronto, Ont., Aug. 21-25, 1906, whereby local travel in Canada will be on the certificate plan, allowing free return, regardless of number in attendance. Passengers going by rail and returning by R. & O. Navigation Company, or vice versa, rate to be one and one-half fare. Travellers from Europe who present certificates signed by the secretary of Eastern Canada Passenger Association, and countersigned by the secretary of the Canadian committee, or the secretary of the British Medical Association, will be granted one-half lowest one-way first-class rail fare; round-trip tickets at lowest one-way first-class rail fare between all points in Canada. Rates to Pacific coast subject to concurrence of Trans-Canadian Passenger Association. Dates

of sale, July 1 to September 30, inclusive. Final return limit September 30. Side trip tickets to be sold from Toronto to delegates from the Maritime Provinces, from all points west of Port Arthur and from the United States, on presentation of validated certificate or deposit receipt at lowest one-way first-class fare for the round trip to all points in Canada. Dates of sale, August 23 to September 1, inclusive. Return limit September 30.

FOREIGN.

A New Hospital at Maan, Turkey.—At Maan, on the great oriental railway of Hedjas, a new hospital of 70 beds was opened January 2, in the presence of the chief of the sacred caravan and numerous pilgrims.

International Congress of Medical Electrology.—The third International Congress of Medical Electrology and Radiology will be held at Milan September 5 to 9. Information as to membership may be obtained from Dr. Herschell, 36 Harley Street, London, W.

Plague of Locusts at Kimberley, South Africa.—During the early part of December the inhabitants of Kimberley suffered from an invasion of locusts. The *British Medical Journal*, January 20, has an illustration showing the wall of the Kimberley Hospital almost covered by the insects.

Damages for Infection of Wet Nurse by Syphilitic Infant.—The court at La Rochelle, France, has awarded about $2,400 for damages claimed by a wet nurse for infection with syphilis from a syphilitic infant. The defendant in the case is the Assistance Publique, that department of the administration which has charge of all the public hospitals, orphan asylums, etc., throughout the country.

Society for the Protection of Children in Turkey.—The Constantinople correspondent of the *Lancet* states that a society exists in that city for the protection of children. It is under the patronage of the Spanish minister, the Marquise Camposagrado, and many well-known members of the upper classes of the city. The society is for the purpose of protecting infants, foundlings, and small children generally. This society possesses a hospital where little ones of every race and denomination receive the best care and treatment that can be provided for them in the city.

International Hygiene Exhibition.—An exhibition will be held at Milan, Italy, from April to November, 1906, on the occasion of the opening of the Simplon tunnel. It will include a section of hygiene embracing general hygiene, public health, sanitary services, rural and industrial hygiene. Another part will comprise all that relates to the etiology, diffusion and prophylaxis of tuberculosis, and to institutions for its treatment. A meeting of the Italian National Antituberculosis Congress will be held at the same time. The president of the sanitary commission is Prof. Luigi Magiagalli, while Dr. Francesco Gatti will preside over the antituberculosis congress.

Sunday Rest for Drug Stores.—The National Board of Public Health of the Republic of Argentina has issued some new regulations respecting Sunday rest. Among them is one which requires the pharmacies to close on Sunday, one in each precinct remaining open, while the others are closed. Each pharmacy takes its turn in remaining open and the board has issued a list of the various pharmacies with the date of their open Sunday, the police being instructed to enforce the decree. In Germany the physicians in a number of towns are combining in the same way to obtain their Sunday rest. They have been in the habit of holding office hours on Sunday as on other days. Now only one office will be open in a precinct, each physician taking his turn.

Medical College at Lucknow, India.—A medical college for the United Provinces is to be established at Lucknow in commemoration of the visit of the prince and princess of Wales. A branch college for women is proposed, and this will probably be named after the princess of Wales. It will be completely separate from the college for men, and there is ample space whereon to build it close to the Lady Dufferin Hospital. The Indian correspondent of the *Lancet* states that in this part of India there is no college for the higher medical training of women. There are only classes for female hospital assistants. It is hoped to get educated Hindoo women to take up medicine. It is announced that the education in this college will be conducted with every regard for the customs of the country.

Suits Against Unqualified Practitioners in Germany.—A quack named Baumann was recently sentenced to four months' imprisonment in Berlin for advertising a universal specific which was said to have done harm in many instances. On his appeal to a higher court the sentence was reduced to a fine of $125, the court accepting as a mitigating circumstance that Baumann was firmly convinced of the healing virtues of his vaunted specific. In another suit brought against a "nature healer" named Mistelsky, a fine of $250 had been imposed, but during the delays of his appeal to a higher court, the case passed beyond the legal limit of one year, and consequently the upper court had to dismiss the suit. Mistelsky was allowed to go without penalty, and he published abroad this occurrence as his "triumphant vindication by the courts against the malicious persecution of the local medical chamber" which had brought the suit.

Restriction of X-Ray Work to Qualified Practitioners.—A committee was recently appointed by the Paris Académie de Médicine to report on the question whether the medical use of the Roentgen rays should be restricted. The committee was composed of Brouardel, Debove, Gariel, Guéniot, Hanriot, Motet, Pouchet and Chauffard. They emphatically advocate that the medical application of the Roentgen rays should be legally restricted to duly qualified persons. Their conclusions are based on the established facts that the medical use of the Roentgen rays may lead to serious accidents, and that certain practices may prove a social danger, while, on the other hand, only qualified physicians or health officers or regularly licensed dentists (in the domain of odontology) are capable of interpreting the results obtained from the point of view of the diagnosis and treatment of affections. The discussion on the subject was published in the *Bulletin* of the academy, Nos. 2 and 3.

Medical Sociology in Germany.—The Berlin medical faculty has recently arranged for a course of lectures on medical sociology, to be delivered by Professor Kirchner, as part of the regular medical curriculum. He is also to deliver a course of postgraduate lectures this summer on the new regulations in regard to communicable diseases. A society was organized a year ago, with headquarters in Berlin, entitled the Society for Medical Sociology, Hygiene and Medical Statistics (Ges. f. soziale Medizin, Hyg. und Medizinalstatistik). R. Lennhof was the prime mover in its organization and the journal of which he is editor, the *Medizinische Reform*, has been made the official organ of the association, and is now appearing under the name, *Wochenschrift f. soziale Med., Hyg. u. Med. statistik*. A yearbook on sociologic hygiene and demography has been published during the last five years by A. Grotjahn and F. Kriegel, and they have now founded a periodical to contain original works on medical sociology, medical statistics, workingmen's insurance, sociologic hygiene and the borderland problems of medicine and social economics. The yearbook is published by Gustav Fischer, Jena, but the journal is to be issued by F. C. W. Vogel, Leipsic. There is still another periodical devoted to these topics published in Germany, the *Archiv f. soziale Medizin und Hygiene*, now in its second year. It is edited by M. Fürst and K. Jaffe, both of Hamburg.

Plague in Japan.—According to *Public Health Reports*, plague has made its appearance at Shimonoseki, where three probable cases have been discovered. Shimonoseki is separated only by a narrow strait from Moji, one of the most important coaling ports in the East, where many vessels bound for America call. There being no American consul at Moji, United States consular bills of health can not be obtained. Consul Sharp reports from Kobe that the locality in which a plague case has been found is inclosed by a zinc fence, and after all the rats on the premises have been destroyed, the place is carefully disinfected. Persons suspected of being infected with the disease are removed for a certain period to a place of detention, where their physical condition is carefully watched. They are allowed to return home after it has been satisfactorily proved that they are not infected with the disease. To encourage the extermination of rats a reward is given by the authorities for each living or dead rat produced in Kobe and Osaka, and in the villages of these districts. These rats are examined, and when plague bacilli are discovered in any of them the places in which they were caught are disinfected in the same manner as when plague patients are found. Postmortem examinations are held on all deceased persons and daily examinations of the health of the public are made by the medical inspectors. Compulsory house cleaning and disinfection are now being enforced in the districts where it is thought the disease may be lurking.

Mexican National Medical Congress.—The national medical association of Mexico, known as *Pedro Escobedo*, held a successful medical congress in the city of Mexico, January 9 to 12. The congress was opened by the president of the republic, who was presented with a gold medal bearing on one side the words: "Asamblea de la Sociedad Pedro Escobedo," with the

date, and on the reverse: "Jubileo Profesional del señor Dr. Don Eduardo Liceaga." A similar gold medal was presented to Liceaga, and duplicates in silver were given to all the delegates to the congress. The opening meeting was a brilliant gathering, with music and recitations, including a poem written for the occasion. The president of the society, Dr. G. Mendizabal, gave a historical sketch of medicine in Mexico and of the society, and then introduced the honorary president, Dr. E. Liceaga, chief of the Superior Council of Health, as the orator of the evening. His address was on "Yellow Fever," and he reported the great strides made in eradicating this disease in Mexico, and outlined the work being done by his department. He announced that notwithstanding that the disease is imported from time to time, it is kept under constant control. At the date of speaking there was only a single yellow fever patient in the republic, and he was well on the road to recovery. He further distributed a number of circulars among them, one addressed to physicians, one to plantation owners and one to railroad officials, all dealing with the prophylaxis of yellow fever, written in simple, popular language. Among the subjects appointed for discussion at the regular meetings of the congress were: "Early Diagnosis of Tuberculosis," "Fever," and "Bases for Treatment of Epilepsy." So many communications were presented that a supplementary meeting was found necessary. Great interest was aroused by a report of J. D. Morales on the scientific production of the national beverage, pulque. He showed that sterilization of the raw material did not interfere with the quality of the drink, while it eliminated the disagreeable odor and the necessity for the use of poisonous substances in its preparation. Pruneda's article on "False Incipient Tuberculosis," and Guzman's on "Rachialgia as an Early Sign of Tuberculosis," attracted much attention. The section on hygiene adopted resolutions to the effect that public drunkenness should be declared a misdemeanor, that a training school for nurses and a Pasteur institute should be established in every state, and that arrangements should be made for country schools for weakly and scrofulous children to teach them gardening, farming, etc. The daily papers of the city of Mexico gave very full reports of the congress, especially of the ovation to Liceaga. He has made many friends in the United States during his attendance at various scientific congresses, etc.

Proposed Reforms for International Medical Congresses.—The German national committee in charge of arrangements for the approaching International Medical Congress, to be held at Lisbon in April, will present the following two proposals at the Lisbon congress and urge their adoption: "1. The organization of an international bureau for the general medical congresses, which will act during the intervals between the congresses. The members of the bureau to be the presidents of the past and approaching congresses and the members of all the national committees. This central office should have its headquarters in Paris, and its task will be to preserve continuity and order in the arrangements of the congresses, especially in the making out of the programs, regulating the sections, appointing topics for discussion and selecting speakers to present the various themes, and the honorary presidents, working always in co-operation with the committee of organization of the congress. Motive: The need for some international body to serve as a court of appeal in matters affecting these international congresses has long made itself felt, to prevent or smooth away differences that may arise between the committee of organization and the representatives of the special sciences. At the same time, such an international body would serve by regulating the relations between the great general congresses and the international specialist congresses, and also with the medical congresses in the different countries. 2. The general international medical congresses should be held not oftener than once in five years. Motive: It is generally acknowledged that the international congresses have lost in prestige of late years. This is due principally to the brief interval between them. In case they occurred only once in five years the preparations for them would probably be more carefully made, and more energy would be devoted to the solving of scientific problems, these forces now being drained away by their being called on so constantly for scientific gatherings of such kinds. Besides this, if the international congresses were not held so frequently, it would be easier to find suitable places at which to hold them." Waldeyer and Posner are chiefly responsible for the drafting of these resolutions. They are to be submitted to the various national committees for discussion in the hope that something tangible will result in the way of the desired reforms. The original text of the resolutions is given in the *Berliner klin. Wochft.*, January 15, of which Ewald and Posner are the editors.

Pharmacology

The Relation Between Physician and Pharmacist.

There is a mutual dependence of pharmacy and medicine on one another: The doctor needs the pharmacist and the pharmacist can't get along very well without the physician. There is no antagonism between the honest pharmacist and the honest physician. On the contrary, there are few physicians who do not have especially close relation with some druggists with whom they frequently consult on pharmaceutical matters. In the propaganda for honest pharmacy as against secrecy and fraud in drugmaking the pharmacist is very much interested—certainly as much so as is the physician. Consequently the drug journals have had much to say about the Council on Pharmacy and Chemistry and its work. Some of these journals have jumped to the conclusion that there would be more money for them in siding with the nostrum makers, but the better journals, those which are recognized as representing scientific pharmacy—and these, we are glad to say, are in the majority—have seen in this movement a promise of better things, and a return to legitimate pharmacy, and have heartily endorsed the movement. Among the latter is the *Druggist's Circular*, of New York, a journal that for nearly fifty years has been recognized as representing the best interests of pharmacy. For years it has been fighting against the growing tendency toward the commercializing of the drug store, which has made pharmacy a mere incident to the business, and the compounding of prescriptions a side issue—the nostrum prescribing doctor being mostly to blame for the latter condition. In the past the *Druggist's Circular* has exposed more fraudulent nostrums than any other drug journal, and it is still courageously carrying on the work. It has now to fight a $50,000 libel suit brought against it by a German chemical company because it dared to publish what it believed to be the truth. This leads us to suggest that the average physician will find in a good pharmaceutical journal—not a trade drug journal—many hints and suggestions about drugs and prescribing that will be most valuable to him. Not only this, but if he were reading such a journal he would be able to see himself as he is seen by the man behind the prescription case, which sometimes would be advantageous to both. He would see himself severely criticised occasionally—often justly so—and this would be a good thing.

For the Safety of Yourself and Your Child.

Under the above heading the *Ladies' Home Journal* for February prints a proposed bill, with a preface thereto, both of which we quote, as follows:

We give below a carefully prepared bill which should be introduced into the legislature of every state this winter. Ask the member of the legislature from your district to do this. Then when the bill is introduced it should be the duty of every man and woman to use his or her influence to see to it that the bill is passed and becomes a law. You can do this by asking or writing your representative and insisting that he shall vote for it. The entire combined influence of the manufacturers of the "patent medicines," and of the newspapers which derive profit from their advertising, will be used with your representative against such a measure. But if the people say "This bill must pass" it *will* pass, and this is what you, as one of the people, can do.

NOW WILL YOU DO IT?

THE TIME HAS COME FOR YOU TO ACT.

AN ACT

TO REGULATE THE MANUFACTURE AND SALE OF "PATENT" AND "PROPRIETARY" MEDICINES.

BE IT ENACTED by the Legislature of the State of.....

Section 1. Each package, bottle, box or other parcel containing what is commonly known as a "patent" or "proprietary" medicine of any kind or in any form, intended for internal consumption by human beings, other than a medicine specially compounded on the written order or prescription of a physician duly authorized to practice his profession in this state, which shall be hereafter manufactured within this state, or which shall be hereafter manufactured without this state and exposed or offered for sale, or sold or given away, or otherwise disposed of, within this state, shall have both on the outside wrapper of such package, bottle, box or other parcel, and also on the label affixed to such package, bottle, box, or other parcel, in plain English, printed in black letters on white paper, of a size not smaller than of type eight point, so called, a complete schedule showing all the ingredients contained in such "patent" or "proprietary" medicine, and the exact proportions of each ingredient thereof.

SECTION II. Whenever any such "patent" or "proprietary" medicine shall contain more than 8 per cent. of ethyl alcohol, or more than one-twenty-fifth of 1 per cent. of morphin, heroin, cocain, or of the salts or equivalents or derivatives of the same or any of them, or more than one-fourth of 1 per cent. of chloral hydrate, or any quantity of belladonna, cotton-root, ergot, or other abortifacient, there shall be printed in plain English, in red letters of a size not smaller than eight point, so called, on white paper, in addition to the schedule of ingredients hereinbefore required, both on the outside wrapper of the package, bottle, box or other parcel containing the same, and also on the label affixed to such package, bottle, box or parcel, a notice reading as follows:

"This package (or bottle or box or parcel as the case may be), contains (here give the name and proportion or percentage of the drug as the case may be), and is therefore under the Act of the Legislature of the State of ..... marked

"POISON,"

and also the single separate word "poison" which shall be printed separately on a line by itself, in bold-face type, and in letters not less than one-quarter of an inch high.

SECTION III. The Board of Health of this state is hereby empowered, immediately on the passage of this act, and from time to time thereafter, to make, or cause to be made, a chemical analysis of "patent" or "proprietary" medicines, manufactured, or exposed or offered for sale, or sold or given away, or otherwise disposed of, within this state, for internal consumption by human beings, other than those specially compounded on a physician's written prescription as aforesaid. If any such analysis shall show that there has been, with respect to any such "patent" or "proprietary" medicine, a failure to comply with the requirements of this act, said board shall at once notify the district attorney of any county in this state in which the said "patent" or "proprietary" medicine is manufactured, or exposed or offered for sale, or sold or given away, or otherwise disposed of, whose duty it shall be to prosecute the person, firm or corporations so violating the provisions hereof.

SECTION IV. Any changes, either in the ingredients or in the proportions or percentages of the ingredients in any such "patent" or "proprietary" medicine manufactured within this state, shall be at once reported by the manufacturer thereof to the Board of Health of this state.

SECTION 5. Any person, firm or corporation who shall manufacture, or expose or offer for sale, or sell, or give away, or otherwise dispose of, any such "patent" or "proprietary" medicine within this state, in violation of the provisions of this act, or any of them, shall be guilty of a misdemeanor and on conviction thereof shall be punishable therefor by a fine of not less than fifty dollars ($50) nor more than five hundred dollars ($500), or imprisonment for not less than thirty (30) days nor more than six (6) months, or both.

SECTION VI. All acts or parts of acts inconsistent herewith are hereby repealed.

SECTION VII. This act shall take effect on the ..... day of ..... 1906.

Thus far we have quoted from the *Ladies' Home Journal*. We take the liberty of making the following suggestions:

The provision limiting the maximum strength of morphin and its derivatives to one twenty-fifth of 1 per cent. would represent a morphin strength equivalent to one grain in 44 fluid drams (0.04 gm. in 100 c.c.). The average teaspoonful is equivalent to 80 minims (5 c.c.) instead of one fluid dram, and it would contain about 1/32 grain of morphin. This is about what many of these medicines now contain; one of the largest used and which has to be labeled "Poison," in England, contains little more morphin than this.

The manufacturers of soothing syrups, cough syrups, "baby's friend," etc., could easily reduce the morphin amount to place their medicines beyond the law, with an increased consumption and sale as the only result. The quantity allowable should be reduced at least one-half—or, in other words, to one-fiftieth of 1 per cent.—but preferably no medicine containing opium, morphin, cocain or their salts or derivatives in any proportion should be exempt; the "Poison" label should be used always when any of these drugs are contained in the preparation.

It is feared that the requirement that all medicines containing 8 per cent. alcohol should be labeled "Poison" is too drastic, since all the tinctures of the United States Pharmacopeia, spirits or essences, such as peppermint, ginger, etc., may contain 50 per cent. or more of alcohol and are largely sold to the public for domestic uses. The alcohol provision might require that any medicine for internal use, of which the average dose is more than one teaspoonful (80 minims), if containing more than a given per cent. of alcohol, should be liable to all the conditions of sale, etc., of the ordinary distilled liquors.

Proprietary Medicines Discussed.

The New York County Medico-Pharmaceutical League at its last meeting held a symposium on "Proprietary Medicines." Some of the druggists held that they were compelled to carry mixtures of which they disapproved because some physicians prescribed them. From the standpoint of the manufacturer, Frederick Mason and Benjamin T. Fairchild stated that through better machinery and greater quantities of material they could do better than the apothecary in his shop. Dr. William J. Robinson and Dr. Heinrich Stern declared that certain manufactured drugs were known as staples to be trusted, but that there are many which are not even to be experimented with.

Commendations of the Fight Against Nostrums.

Dr. Albert S. Barnes, Bokins, Ohio, writes, under date of January 16:

> "I am glad to note the awakening in THE JOURNAL. I hope the time will speedily come when all who read THE JOURNAL or advertise in it will know assuredly that it stands for ethics, means to be ethical, and is ethical; and that so it will champion the cause of legitimate medicine and honorable practitioners against all fakes and fakers, whether within or without the profession."

Dr. E. B. Partin, Chunky, Miss., January 16, writes:

> "I am well pleased with THE JOURNAL and as president of our county (Newton) society can say that we fully indorse your course in regard to 'patent' and proprietary medicines. A bill now before our legislature will very likely pass in regard to this growing evil."

Dr. F. W. Taylor, Provo City, Utah, writes, January 12:

> "Your articles on the patent and proprietary medicines (as well as those in several lay journals) are certainly working wonders among the members of the general medical profession, causing them to think for themselves and to discard the ready made and highly seasoned therapeutics that have been almost daily forced on them by the dealers.
>
> "Continue the good work and do not cease your efforts until deception and graft have been overthrown. You certainly have the whole medical profession behind you and with such a sustaining force wonders can and will be accomplished.
>
> "Wishing you success in your fight for right, your educative measures, and your high ideals."

Dr. Richard F. Rand, New Haven, Conn., writes, January 20:

> "Allow me also to express my appreciation of your efforts in the crusade against the nostrum evil. I hope you will continue your suggestions for treatment along the line of standard therapeutics."

Dr. W. H. Ensworth, Boston, writes January 17:

> "The two reasons that I subscribe at this time are: First, the fact that the next meeting of the American Medical Association is to be held in Boston; second, the stand you have taken on the question of the use of proprietary medicines.
>
> "The latter is the more important and is the deciding reason with me. Laziness or ignorance is the only imaginable excuse for such use. Usually it is both, with one or the other predominating. I trust that you will keep on with the good work."

At a meeting held January 3, the Suffolk District Section of the Massachusetts Medical Society passed resolutions indorsing the action of the American Medical Association in establishing a Council on Pharmacy and Chemistry, and approving the work done by the Council. The society also commended the work done by THE JOURNAL, *Collier's Weekly* and the

Ladies' Home Journal in exposing the methods of the Proprietary Association and showing up the fraudulent use of sham testimonials and the loss of life due to the use of products exploited by members of that association. Similar resolutions were passed by the Tippecanoe County (Ind.) Medical Society, the Jackson County (Mo.) Medical Society, the Jefferson County (Ala.) Medical Society, and the Delaware County (Pa.) Medical Society.

The Gibson County (Ind.) Medical Society, at the regular meeting, held January 26, adopted the following resolutions:

Resolved, That in view of the rapidly increasing patent and proprietary nostrum evil being imposed on the people and exploited among physicians of the county, it becomes our duty and pleasure heartily to approve the action of the American Medical Association in establishing a Council on Pharmacy and Chemistry.

Resolved, That we urge THE JOURNAL of the American Medical Association to continue its campaign of educating its readers in the use of official drugs and remedies.

Resolved, That we heartily approve the stand taken by *Collier's Weekly* and the *Ladies' Home Journal*, in their attempt to arouse in the public conscience a just appreciation of the nostrum evil, and the manner and means used to coerce the public press to exploit these goods and to oppose the passage of any laws that would compel the fixing of a label on each package whereby the public might know what it is taking.

Resolved, That a copy of these resolutions be sent to THE JOURNAL of the American Medical Association, to *Collier's Weekly* and to the *Ladies' Home Journal*.

No Longer Members of the Proprietary Association.

We have been notified by the Cystogen Chemical Company, St. Louis, that they have resigned from the Proprietary Association of America.

Messrs. Schlotterbeck & Foss Company, Portland, Maine, have also notified us that they have withdrawn from the Proprietary Association.

Another Country Newspaper Taking the Right Stand.

The *Ashland* (Neb.) *Journal* declares that it will not take advertisements from fraudulent patent medicine companies. It expresses its indignation over the fact that newspapers which should stand as defenders of the home accept the advertisements of these frauds and help them reach their victims. The editor admits that some testimonials are genuine and that some persons are helped by these nostrums, but he calls attention to the fact that the same can be said about whisky, and that both the nostrums and whisky are responsible for thousands of dishonored graves, wrecked lives, ruined homes and broken hearts. The editor says further that his paper "needs advertising as badly as any paper in the state, but it does not need it badly enough to accept one line that it does not believe is thoroughly reliable, and we have no space for any medicine we do not know to be absolutely reliable.

"Ashland has a number of physicians whose abilities and characters stand unquestioned. We have drug stores where absolute honesty and accuracy are byond doubt. Our physicians and druggists are men whom one can trust with the health and welfare of his loved ones with perfect confidence that the trust will be regarded as sacred and holy—men who would not endanger the lives of their patients for any amount.

"Health is the most precious blessing of this life, and we can not guard it too carefully. Don't risk it with patent medicines put up by strangers. Go to your home doctor."

Alcohol in "Patent Medicines."

A bill relating to alcohol in patent medicines has been introduced in the Massachusetts legislature. Last year a similar bill was defeated in the state senate. This year's bill (House No. 231) accompanying the petition of Representative W. Rodman Peabody for legislation to require that the percentage of alcohol in patent or proprietary medicines or foods shall be stated on bottles or packages thereof, provides that "on every package, bottle or other receptacle holding any proprietary or patent medicine, or any proprietary or patent food preparation, which contains alcohol to an amount exceeding 3 per cent. by volume thereof, there shall be marked or inscribed a statement of the percentage of alcohol by volume contained therein; and that whoever manufactures, sells or offers for sale any medicine or food preparation in violation of the provisions of this act shall be punished by a fine of not less than five nor more than one hundred dollars."

Marriages

ARTHUR MCGUGAN, M.D., to Miss Lucia Owen, both of Denver, January 24.

PAUL H. KEYES, M.D., to Miss Esther Collier, both of Dana, Ind., January 11.

G. W. DUNKLE, M.D., to Miss Ida E. Hemstead of Newport, Iowa, January 16.

ABRAM B. FLEEGER, M.D., to Miss Etta M. Taylor, both of Cairo, Mo., January 17.

J. T. MILES, M.D., Bryant, Ind., to Mrs. Mary Addington of Geneva, Ind., January 15.

FRANCIS F. H. SULLIVAN, M.D., to Miss Ethel Casebolt, both of Miami, Mo., January 13.

WALTER S. KING, M.D., Cedar Rapids, Iowa, to Miss Mabel Gravatt of Traer, Iowa, January 17.

F. M. BRUCE, M.D., Pineview, Ga., to Miss Annie Pearl Mitchell of Abbeville, Ga., January 7.

A. SPENCER KAUFMAN, M.D., Philadelphia, to Miss Florence Fox of Lock Haven, Pa., January 24.

HEBER H. CLEVELAND, M.D., Orange, Mass., to Miss Mary Elizabeth Reed of Toledo, Ohio, January 17.

JOSEPH VON C. ROBERTS, M.D., Philadelphia, to Mrs. Grace F. Reynolds of Middletown, Del., January 23.

HAWKINS BISHOP, M.D., Burnside, Ky., to Miss Lura Lipps of Hustonville, Ky., at Lexington, Ky., January 24.

WILLIAM WHITEHEAD GILFILLAN, M.D., New York City, to Mrs. Mary Louise Hayes of Newark, N. J., January 25.

E. LAWRENCE MEYER, M.D., Walnut Grove, Minn., to Miss Margaret Emerson Dinsmore of Minneapolis, January 17.

LIEUTENANT JOHN ALEXANDER CLARK, M.D., United States Army, to Miss Anna Nicholson Scott, at Washington, D. C., January 26.

Deaths

Berthold B. Pirosh, M.D. University of St. Petersburg, Russia, 1877; a member of the American Medical Association, Illinois State Medical Society, Chicago Medical Society, and the German Medical Association; professor of electro-therapeutics in the College of Physicians and Surgeons, Chicago; a member of the United Hebrew Charities, and a member of the medical staff of the Orthodox Home for Aged Jews; by reason of his activity in behalf of Jewish immigrants, known as the "father of the Russian Jews," died at his home in Chicago, January 25, from pleurisy, after an illness of seven months, aged 52.

John W. Long, M.D. Bellevue Hospital Medical College, New York City, 1865, of Bryan, Ohio; acting assistant surgeon in the Army for three years; a member of the American Medical Association, and of the Ohio State Medical Society, Northwestern Ohio Medical Society and Williams County Medical Society; local surgeon of the Lake Shore & Michigan Southern Railway for more than thirty years, died at St. Joseph's Hospital, Chicago, from heart disease, while under operation for malignant disease of the throat, January 23, aged 71.

Adelbert D. Head, M.D. Albany (N. Y.) Medical College, 1866; a member of the American Medical Association; one of the founders of the New York State Medical Association; a member of the Syracuse Academy of Medicine; a veteran of the Civil War; one of the best-known practitioners of Syracuse, N. Y., died at his home in that city, January 21, from diabetes, after an illness of nearly a year, aged 63.

Norman R. Miller, M.D. College of Physicians and Surgeons in the City of New York, 1882; a member of the Massachusetts Medical Society; for several years medical director of a sanitarium in Lynn, Mass., died recently at the Westboro Insane Hospital, from brain disease, after an illness of more than a year.

James Marion Walker, M.D. University of Louisvile (Ky.) Medical Department, 1848; St. Louis Medical College, 1855, died at the home of his son-in-law, Dr. J. Y. Hume, Armstrong, Mo., from carcinoma of the right shoulder, Dec. 8, 1905, after an illness of about two years, aged 81.

Simon A. Freeman, M.D. University of Buffalo (N. Y.) Medical Department, 1869; hospital steward during the Civil War; acting assistant surgeon, United States Army, from 1870 to 1879; for many years in business in Everett, Mass., died recently at his home in California.

Charles C. Parker, M.D. Starling Medical College, Columbus, Ohio, 1850; late demonstrator of anatomy in that institution; surgeon of the Twelfth Iowa Volunteer Infantry in the Civil War; for four years trustee of the Iowa Hospital for the Insane, Independence, and for many years a trustee of the Upper Iowa University, died suddenly at his home in Fayette, Iowa, January 14, aged 82.

Thomas B. Potter, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1851; assistant surgeon of the Seventy-seventh Pennsylvania Volunteer Infantry in the Civil War; at one time burgess of Philipsburg, Pa., died at his home in that place, January 12, from disease of the kidneys, after an illness of ten weeks, aged 76.

William B. Neftel, M.D. University of St. Petersburg, Russia, 1852; a member of the Medical Society of the County of New York, New York Academy of Medicine, New York Pathological Society, and Physicians' Mutual Aid Association; a specialist on nervous diseases, died at his home in New York City, January 20, aged 75.

Artemus L. Hersey, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1853, for more than half a century a practitioner of Oxford, Maine, and for several years superintendent of schools, died at the home of his daughter in Boston, January 12, from cerebral hemorrhage, after an illness of two days, aged 79.

Frank H. Caldwell, M.D. Jefferson Medical College, Philadelphia, 1880; a member of the American Medical Association; for more than 20 years a practitioner of Florida, and for several years chief surgeon in that state for the Plant System, died at his home in Tampa, January 20, from nephritis.

John Martin Klinck, M.D. Medical College of the State of South Carolina, Charleston, 1905, an interne at the Kingston Avenue Hospital for Contagious Diseases, Brooklyn, N. Y., died at that institution, January 19, from scarlet fever, after an illness of six days, aged 22.

William H. Harrison, M.D. Bellevue Hospital Medical College, New York City, 1864, assistant surgeon of the Fourth Wisconsin Volunteer Cavalry during the Civil War, died at his home in Brunner, Texas, January 19, from nephritis, after an illness of a year, aged 65.

Edward Williams, M.D. Medical College of Virginia, Richmond, 1856, a member of the Dan River district school board as well as prominent in county affairs, died at his home in Malmaison, Va., January 20, after an illness of a year, aged 72.

Julian Perault, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1857, a pioneer physician of San Francisco, died at the home of his daughter in Alameda, January 15, from cerebral hemorrhage, after an illness of 19 days.

Howard O. Smith, M.D. Vanderbilt University Medical Department, Nashville, 1892, formerly of Alpine, Quanar and Hamilton, Texas, died from tuberculosis at Guadalajara, Mexico, January 12, after an illness of several years.

George H. Carpenter, M.D. Vermont Medical College, Woodstock, 1842, surgeon of the Ninety-first Ohio Volunteer Infantry in the Civil War, died at his home in Cleveland, January 21, after an invalidism of several years, aged 85.

Charles Stuart Tripler, M.D. University of Paris, France, 1866, of Cromwell, a veteran of the Civil War, died at the Fannie Paddock Hospital, Tacoma, from septicemia, after an illness of several weeks, aged 59.

Milton Baker, M.D. Trinity University and Trinity Medical College, Toronto, 1894, of Brantford, Ont., died in the Brantford General Hospital January 23, from middle-ear disease followed by meningitis, aged 38.

Pleasant B. Cross, M.D. Eclectic Medical Institute, Cincinnati, 1872, a veteran of the Civil War, died at his home in South Webster, Ohio, January 22, from pneumonia, after an illness of one week, aged 62.

Louis Thompson Sturgis, M.D. Rush Medical College, Chicago, 1882, a well-known physician of Fort Wayne, Ind., died at his home in that city, January 15, from nephritis, after an extended illness, aged 57.

Hannibal Hamlin, M.D. Medical School of Maine at Bowdoin College, Brunswick, 1872, chairman of the board of selectmen of Orono, Maine, died at his home in that place, January 19, from peritonitis, aged 58.

J. W. Oslin, M.D. Medical College of Georgia, Augusta, 1854, for many years local surgeon of the Southern Railroad, died at his home in Gainesville, Ga., January 9, after an illness of several weeks, aged 78.

Franklin P. Sigworth, M.D. College of Physicians and Surgeons, Baltimore, 1883, died at his home in Cranesville, Pa., January 8, from accidental poisoning by fluid extract of aconite, taken in mistake for cough syrup, twenty-four hours before, aged 50.

Edwin Dudley Smith, M.D. Eclectic Medical College of the City of New York, 1876, died at his home in Springfield, Mass., January 4, after an illness of ten months, from valvular heart disease, aged 72.

William Hillhouse, M.D. New York University, New York City, 1845, once tax collector of New Haven, Conn., died at the home of his son in that city, January 17, from cerebral hemorrhage, aged 85.

Joseph A. Coffman, M.D. Kentucky School of Medicine, Louisville, 1890, of Poetry, Texas, fell from a railroad trestle at Terrell, Texas, January 18, and died the next morning from his injuries.

Charles Wesley Bayley, M.D. University of Vermont Medical Department, 1876, formerly of Oakdale, Cal., died at his home in San José, Cal., January 9, after a prolonged illness, aged 60.

John Frederick Brine, M.D. Harvard University Medical School, Boston, 1868, medical health officer for the Commercial Cable Company, died at Hazel Hill, Nova Scotia, January 18.

Edmund H. Evans, M.D. Jefferson Medical College, Philadelphia, 1889, died at his home in Philadelphia, from Bright's disease, January 26, after an illness of two years, aged 45.

Frank Parker Perry, M.D. Long Island College Hospital, Brooklyn, N. Y., 1873, died at his home in Bucksport, Maine, January 14, from paralysis, after a long illness, aged 55.

William Anderson Payne, M.D., formerly of New York City, a member of the Bexar County (Texas) Medical Society, died suddenly in his office in San Antonio, January 10, aged 32.

Frederick W. Lapsley, M.D. Detroit (Mich.) College of Medicine, 1892, surgeon during the Spanish-American War, died recently in Chicago, from pneumonia, aged 36.

Albert G. Sisson, M.D. Vanderbilt University Medical Department, Nashville, 1879, died suddenly at his home in Wills Point, Texas, January 9, from heart disease.

Alfred S. Patrick, M.D. Medical College of Ohio, Cincinnati 1853, died at his home in Charleston, W. Va., January 23 after an illness of four weeks, aged 74.

William O. Powell, M.D. (Illinois State Board of Health), 1887, once postmaster of Mackinaw, Ill., died suddenly, January 23, while hunting near Mackinaw.

George Gaines Lyon, M.D. Pulte Medical College, Cincinnati, 1888, of Mobile, Ala., died in Chicago, January 17, from paralysis, after a prolonged illness, aged 45.

Columbus W. Osburn, M.D. Cincinnati College of Medicine and Surgery, 1871, died at his home in West Lebanon, Ind., January 11, after a long illness.

William John Early, M.D., member of the College of Physicians and Surgeons of Ontaria, 1889, died at his home at Owen Sound, Ont., January 25.

M. C. Johnson, M.D. Kentucky School of Medicine, Louisville, 1880, died at his home in Ghent, Ky., January 23, from heart disease, aged about 60.

John McClellan, M.D. Jefferson Medical College, Philadelphia, 1836, died at his home in Woodstock, Conn., Dec. 19, 1905, from senile debility, aged 93.

L. B. Selvidge, M.D. Missouri Medical College, St. Louis, 1884, died at his home in Collins, Mo., January 6, from pneumonia, after a short illness.

Isaiah Williams, M.D. Eclectic Medical Institute, Cincinnati, 1853, died at his home in Clarence, Iowa, January 7, after a long illness, aged 85.

Henry S. Kelley, M.D. Ensworth Medical College, St. Joseph, Mo., 1893, died at his home in Fillmore, Mo., January 12, from pneumonia, aged 35.

Joseph Hancock, M.D. Hahnemann Medical College, Philadelphia, 1878, died at his home in Philadelphia, January 19, aged 54.

Amacey B. Abell, M.D. Jefferson Medical College, Philadelphia, 1875, died at his home in Philadelphia, January 24, aged 62.

Deaths Abroad.

Jose Esteve, M.D., of Murica, Spain, died at an advanced age early in January. He was a very popular physician, president of the local academy of medicine, and had taken a prominent part in political life. All the stores in Murcia were closed on the day of his funeral, and his body was escorted to the tomb by a concourse of ten thousand mourners.

Book Notices

NEW YORK STATE LIBRARY. Yearbook of Legislation, 1904. Edited by R. H. Whitten, Sociology Librarian. Cloth. Price, $1.00 Albany: New York State Education Department, 1905.

This yearbook furnishes a practical guide to American legislation, most useful to publicists, legislators, executives and others interested in any specific movement or in the general trend of legislation. It includes an index of legislation, briefly indexing or summarizing 2,190 laws and constitutional amendments. There is also a review of legislation made up of the contributions of forty specialists from all parts of the country, each reviewing the year's progress in his particular field.

ANATOMY AND PHYSIOLOGY FOR NURSES. By L. Lewis, M.D. Illustrated. Cloth. Pp. 317. Price, $1.75 net. Philadelphia: W. B. Saunders & Co., 1905.

Dr. Lewis has confined himself to information really necessary for nurses and, unlike many authors, has not digressed from his subject. The text is clear and concise and the illustrations are good. At the end of each chapter there is a list of review questions which should prove of value to nurses using this book.

Queries and Minor Notes

SWEET SPIRITS OF NITER.

JAKIN, GA., Jan. 19, 1906.

To the Editor:—I would like to know whether or not sweet spirit of niter is of any use after it turns acid. Potter's Materia Medica says: "It soon turns acid on standing, and should not be kept long." I have a great deal of trouble getting it sweet, and on making complaint to my druggist about a package received that was intensely acid, he replied that the article was C. P., and all right, that the name sweet spirit of niter did not indicate that it was sweet, and that I could add a small quantity of bicarbonate of soda to blunt the sharpness. When fever mixtures are made with the acid stuff, it effervesces with potassium citrate, and does not that destroy the properties of the latter drug? Please state the facts in regard to this matter and oblige. H. G. MINTER.

ANSWER.—Spirit of nitrous ether was called "sweet" spirit of niter to emphasize the fact that when pure and fresh it should have an agreeable sweetish taste. It is a solution in alcohol of nitrous ether, which is ethyl nitrite with some other products derived in the making. This nitrous ether may be kept for a considerable time without change in alcoholic solution, but on exposure, or on dilution with water, or watery mixtures, it is rapidly decomposed. This is what happens to the spirit which often contains water and, therefore, turns acid, loses its strength and becomes unfit for use. To neutralize the acid by placing a crystal of potassium bicarbonate in the bottle is of course simply a makeshift. When spirit of nitrous ether effervesces with alkalies, it is valueless and should be replaced by a fresh supply. The only way to insure a fresh article is to obtain the spirit in original one-pound bottles of well-known make, and then to keep it in a cool, dark place in a tightly stoppered container. The concentrated nitrous ether may also be obtained in hermetically sealed glass-tubes which on dilution with alcohol produces at once a fresh and full strength spirit.

FOREIGN BODIES SWALLOWED AND SAFELY EXPELLED FROM THE INTESTINE.

TUCSON, ARIZ., Jan. 16, 1906.

To the Editor:—Referring to the reports of cases published by Drs. L. W. Littig and J. A. Postlewait, in THE JOURNAL, Nov. 25, 1905, and Jan. 13, 1906, I would say that I have seen such articles passed by infants not infrequently. A few weeks ago a child of fifteen months swallowed a shawl pin, 3 inches in length and having on one end a glass head, slightly more than a quarter of an inch in diameter. The pin was passed intact after exactly six weeks. There were no symptoms in the interval. In another case, an adult, with a large abdomen, swallowed a fish bone which in the course of about three months ulcerated out through the abdominal walls, making its appearance just below the umbilicus. In this case, there followed an intraperitoneal abscess, which was opened, the patient making a good recovery. Such articles as opened safety pins, brooches, etc., passed safely through the intestinal tube, must be encountered by every man with a large general practice. MARK A. RODGERS, M.D.

THORNVILLE, OHIO, Jan. 19, 1906.

To the Editor:—In THE JOURNAL, Jan. 13, reference is made to two cases of infants swallowing safety pins. A case equally, if not more interesting, came under our observation during the past summer. A child of 6½ months swallowed an open safety pin measuring one inch in length and half inch at angle of opening. The pin was swallowed on the evening of June 20 and was discovered by the mother in the child's diaper on the morning of July 17. The case is remarkable on account of the age of the child and the length of time the pin took to pass through the intestinal tract. The child suffered no inconvenience and received no treatment.

G. W. and F. R. CLEMSON.

PHENOL AND FORMALDEHYD STERILIZATION.

————, IOWA, Jan. 19, 1906.

To the Editor:—1. Can knives be thoroughly sterilized in phenol? 2. Can dressings be thoroughly sterilized by formaldehyd vapor? If so, how? H. E. C.

ANSWER.—1. Knives can be thoroughly sterilized in 95 per cent. phenol solution. They should be rinsed in absolute alcohol before being used. 2. Yes. If the dressings are in sealed packages loosen them so as to be easily penetrated by the fumes. Place them in a receptacle in which the vapor can be generated and leave it closed a few hours after filled with the vapor. Formaldehyd sterilization of dressings is not very practical, as the vapor renders the dressings irritating, not only to the wounds, but also to the skin. To allow the dressings to remain spread out so that the vapor may escape might endanger recontamination. Steam sterilization is the best for dressings.

State Boards of Registration

COMING EXAMINATIONS.

NEBRASKA State Board of Health, State House, Lincoln. February, 7-8. Secretary, George H. Brash, Beatrice.

Louisiana November Report.—Dr. F. A. Larue, secretary of the Louisiana State Board of Medical Examiners, reports the written examination, held at New Orleans, November 14-15, 1905. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of applicants examined was 22, of whom 16 passed and 6 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Cornell University	(1905)	94.4
Women's Medical College of Pennsylvania	(1905)	84.8
University of Arkansas	(1905)	83.8
Baltimore Med. College	(1901)	83.2
University of St. Louis	(1905)	90.2
University of Palermo, Italy	(1900)	87.4
Northwestern University	(1905)	83.6
University of the South	(1890) 92; (1904) 75.4; (1905)	81.4, 85.4, 87.6.
Tulane Medical College	(1905)	78.4, 88.5
University of Illinois*	(1904)	80.6
Flint Medical College*	(1905)	80.4
FAILED.		
Louisville Medical College	(1905)	72.6
Kentucky School of Medicine	(1898)	65
Memphis Hosp. Medical College	(1893)	66
University of Georgia	(1889)	74
Flint Medical College*	(1904) 69.8; (1905)	66

* Colored.

Maryland December Report.—Dr. J. McPherson Scott, secretary of the State Board of Medical Examiners, reports that 31 of the 60 candidates who took the examination in December, passed successfully and received licenses.

Michigan.—Dr. Beverley D. Harison has announced the removal of the office of the State Board of Registration in Medicine from Sault Ste. Marie to 303 Whitney Building, Detroit.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending January 27:

Devereux, J. R., and Keller, Wm. L., asst.-surgeons, ordered to accompany Second Infantry from Fort Logan, Colo., to San Francisco. On completion of this duty to return to their proper stations. Asst.-Surgeon Keller, Fort Douglas, Utah, to report not later than the 23d inst., at Fort Logan, Colo.

Rockhill, Edward P., asst.-surgeon, advanced from grade of first lieutenant to captain.

Ford, Clyde S., asst.-surgeon, relieved from duty at Fort Barrancas, Fla., and ordered to medical supply depot, New York City, N. Y., for duty.

Ashburn, P. M., and Craig, Charles F., asst.-surgeons, appointed members of a board of medical officers to meet at Manila, P. I., for the purpose of studying tropical diseases as they exist in the Philippine Islands. The board will be governed in its proceedings by such instructions as it may receive from the Surgeon General of the Army.

Snyder, Henry D., surgeon, ordered to Fort Reno, Oklahoma Territory, for purpose of investigating and reporting on administration of medical department at that post.

Clayton, J. B., asst.-surgeon, reported for temporary duty at Military Prison, Fort Leavenworth, Kans.

Scott, Geo. H., asst.-surgeon, granted thirty days' leave of absence when relieved from duty at San Francisco.

Hallock, H. M., surgeon, granted twenty-one days' sick leave of absence.

Bispham, Wm. N., asst.-surgeon, leave of absence extended thirty days.

Gandy, Charles M., surgeon, ordered to accompany Headquarters and Second Battalion, First Infantry, from Fort Wayne, Mich., to New York City, and on completion of this duty to return to station.

Marrow, Chas. E., asst.-surgeon, ordered to proceed from Fort Sheridan, Ill., to Fort Brady, Mich., to accompany First Battalion First Infantry from that post to New York City, and on completion of this duty to return to station.

Coffin, J. M., asst.-surgeon, reported for duty at Army and Navy General Hospital, Hot Springs, Ark.

Reilly, John J., Shook, Jay R., Wilson, Compton, asst.-surgeons, ordered to report to Major William H. Arthur, president of examining board, Army Medical Museum Building, this city, for examination to determine their fitness for advancement.

Thorp, Charles W., contract surgeon, granted sick leave of absence for one month.

Carson, Samuel K., contract surgeon, ordered to Fort Jay, N. Y., for temporary duty.

Brooks, John D., contract surgeon returned to Fort Meads, S. D., from leave of absence.

Hall, Henry M., contract surgeon, ordered to temporary duty at Fort McDowell, Cal., on the completion of which duty he will proceed home, Cedartown, Ga., for annulment of contract after leave of absence for two months.

Millikin, John D., dental surgeon, granted ten days' leave of absence.

Wolven, F., Homer, dental surgeon, left Fort McKinley, Me., and arrived at Fort Preble, Me., for duty.

Long, Charles J., dental surgeon, ordered to visit, in succession, Forts Harrison, Mont.; Missoula, Mont.; Yellowstone, Wyo.; Keogh, Mont.; Lincoln, N. D.; Assiniboine, Mont.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending January 27:

E. L. Jones, asst.-surgeon, appointed assistant surgeon, with rank of lieutenant, junior grade, from Dec. 30, 1905.

Page, J. E., surgeon, commissioned surgeon from April 20, 1904.

Bell, W. H., surgeon, commissioned surgeon from May 20, 1905.

Brown, E. M., P. A. surgeon, commissioned P. A. surgeon from May 8, 1905.

Baker, M. W., P. A. surgeon, commissioned P. A. surgeon from July 10, 1905.

Leys, J. F., surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Hospital, Norfolk, Va.

Pickrell, G., surgeon, detached from duty in charge of the Naval Hospital, San Juan, P. R., ordered home, and granted sick leave for three months.

Murphy, J. F., P. A. surgeon, commissioned P. A. surgeon from May 18, 1905.

Holloway, J. H., P. A. surgeon, commissioned P. A. surgeon from September 26, 1905.

Schwerin, L. H., acting asst.-surgeon, appointed acting asst.-surgeon from Jan. 28, 1906.

Stokes, C. F., surgeon, detached from duty at the Naval Medical School, Washington, D. C., February 7, and ordered to duty in command of the Naval Hospital, San Juan, P. R., sailing from New York, N. Y., about February 10.

Braisted, W. C., surgeon, detached from the bureau of medicine and surgery, Navy Department, February 7, and ordered to duty at the Naval Medical School, Washington, D. C., and to additional duty as a member of the anatomical board of the District of Columbia.

Field, J. G., surgeon, detached from the *Celtic* and ordered home to wait orders.

Jones, E. L., asst.-surgeon, ordered to the Naval Hospital, Mare Island, Cal.

McDonell, W. N., asst.-surgeon, detached from the Naval Station, Culebra, W. I., and ordered to the *Maine* to temporary duty, and thence to the *Celtic*.

Hull, H. F., asst.-surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the *Celtic* for temporary duty, and thence to the Naval Station, Culebra, W. I., and to additional duty on the *Alliance*.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending January 24:

Guiteras, G. M., surgeon, granted ten days' leave of absence from January 27.

Greene, J. B., P. A. surgeon, granted leave of absence for two months and twelve days from January 18.

Foster, M. H., P. A. surgeon, granted leave of absence for one month from January 23.

Richardson, T. F., P. A. surgeon, granted three months leave of absence from January 20, with permission to go beyond sea.

Richardson, T. F., P. A. surgeon, relieved from duty at Savannah, Ga., effective January 31.

Richardson, T. F., P. A. surgeon, excused from duty, without pay, from April 30, 1906, to Feb. 15, 1907, for the purpose of undertaking the sanitation of the North coast of the Republic of Honduras.

McKeon, F. H., asst.-surgeon, temporarily relieved at San Francisco Quarantine Station, and directed to proceed to Columbia River Quarantine Station for temporary duty.

Keatley, H. W., acting asst.-surgeon, granted leave of absence for twenty days, from January 20.

Stearns, W. L., pharmacist, granted extension of leave of absence for seven days, from January 20.

RESIGNATION.

Greene, J. B., P. A. surgeon, resigned to take effect, March 30.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 26:

SMALLPOX—UNITED STATES.

California: San Francisco, Jan. 6-13, 7 cases.
Colorado: Teller County, Dec. 1-31, 10 cases.
Florida: Jacksonville, Jan. 13-20, 5 cases; Alachua County, 1 case; Columbia County, 4 cases; Hillsboro County, Jan. 13-26, 12 cases, La Fayette County, Jan. 13-26, 6 cases.
Kentucky: Covington, Jan. 13-26, 2 cases.
Louisiana: New Orleans, Jan. 13-20, 1 case; Shreveport, 3 cases.
Maryland: Baltimore, Jan. 13-20, 4 cases.
Missouri: St. Louis, Jan. 13-20, 1 case.
Montana: Flathead County, Dec. 1-31, 1 case.
Ohio: Cincinnati, Jan. 12-19, 6 cases.
Virginia: Norfolk, Jan. 15, 5 cases; (at Craney Island, 68).
Washington: Bellingham, Dec. 1-31, 8 cases; Cowlitz County, 7 cases; Spokane, 2 cases; Whitman County, 1 case.
Wisconsin: Appleton, Jan. 13-20, 2 cases; Milwaukee, Jan. 6-20, 2 cases.

SMALLPOX—INSULAR.

Porto Rico: San Juan, Nov. 1-30, present.

SMALLPOX—FOREIGN.

Africa: Cape Town, Dec. 2-9, 2 cases.
Brazil: Rio de Janeiro, Dec. 10-24, 3 cases, 1 death.
Canada: Toronto, Jan. 6-13, 1 case.
Chile: Antofagasta, Oct. 1-31, 51 deaths; Nov. 1-30, 27 deaths.
China: Hong Kong, Dec. 2-9, 1 case, 1 death.
Ecuador: Guayaquil, Dec. 10-17, 5 deaths.
France, Paris, Dec. 31-Jan. 6, 15 cases, 1 death.
Gibraltar: Dec. 24- Jan. 7, 12 cases, 1 death.
India: Bombay, Dec. 19-26, 6 deaths; Karachi, Dec. 17-24, 1 case.
Italy: Catania, Jan. 4-11, 3 deaths.
Mexico: Tuxpam, Jan. 9-16, 20 cases, 1 death.
Russia: Moscow, Nov. 11-23, 10 cases, 3 deaths; Odessa, Jan. 16-30, 25 cases, 3 deaths; St. Petersburg, Dec. 19-23, 26 cases, 3 deaths.
Spain: Barcelona, Dec. 21-31, 13 deaths.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, Dec. 10-24, 9 cases, 9 deaths.
Cuba: Havana, Jan. 16-22, 2 cases, 2 deaths.
Ecuador: Guayaquil, Dec. 10-17, 6 deaths.
Mexico: Orizaba, Jan. 7-13, 1 case, 1 death.

CHOLERA—INSULAR.

Philippine Islands: Manila, Dec. 2-9, 1 case, 1 death.

CHOLERA—FOREIGN.

Russia: Government of Lomza, Dec. 18-21, 5 cases.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, Dec. 10-24, 16 cases, 7 deaths.
China: Hong Kong, Dec. 2-9, 3 cases, 3 deaths.
India: Bombay, Dec. 19-26, 9 deaths; Karachi, Dec. 17-24, 17 cases, 13 deaths.
Japan: Kobe, Nov. 8-Dec. 8, 41 cases, 30 deaths; Osaka, Nov. 2-Dec. 8, 66 cases, 51 deaths.
Peru: Guadeloup, Nov. 20-Dec. 10, 2 cases; Lima, 7 cases; Trujillo, 3 cases.

Medical Organization

Kansas.

NEOSHO COUNTY MEDICAL SOCIETY.—With a charter membership of 22 this society was organized at Chanute. The following officers were elected: Dr. Ralph A. Light, Chanute, president; Dr. John C. Lardner, Chanute, vice-president; Dr. L. D. Johnson, Chanute, secretary and treasurer; Drs. William E. Barker and J. B. Edwards, both of Chanute, delegates to State Society, and Drs. F. W. Jones, Earleton; G. W. Morgan, Kimball, and Orlando M. Edwards, Chanute, censors.

Louisiana.

UNION PARISH MEDICAL SOCIETY.—This society entered into permanent organization at Farmerville, Dec. 19, 1905, and elected the following officers: Dr. Charles H. Jameson, Farmerville, president; Dr. William Sellers, vice-president, and Dr. Royal L. Love, Mosely's Bluff, secretary and treasurer.

Oklahoma.

COMANCHE COUNTY MEDICAL AND SURGICAL SOCIETY.—This society was recently organized at Lawton, with Dr. Lorin C. Knee, president, and Dr. Maud N. Mead, secretary, both of Lawton.

SOUTHWESTERN OKLAHOMA MEDICAL ASSOCIATION.—Under this name the physicians of Greer, Washita, Kiowa and Custer counties organized at Cordell, January 17. The following officers were elected: Dr. W. L. York, Hobart, president; Drs. A. W. Holland, Hobart, and James Hempstead, Arapahoe, vice-presidents; Dr. Alfred H. Bungardt, Cordell, secretary, and Dr. T. J. Dodson, Mangum; W. J. Kerley, Cordell; W. W. Miller, Gotebo; William Tidball, Barton; James Hempstead, Arapahoe, and James M. Bonham, Hobart, censors.

What Can the County Society Do?

IX. CO-OPERATE WITH THE HEALTH OFFICER.

Every county medical society should be actively interested in the appointment of municipal boards of health and health officers. A committee—the public relations committee usually—made up of strong and tactful members, should gradually make the political forces feel that the organized profession has a vital though perfectly unselfish interest in these appointments. Having secured good health officials and proper ordinances, there should be constant and complete co-operation between the society and the authorities.

In Cleveland, during the epidemic of smallpox, the committee of public health of the Academy of Medicine held weekly or daily meetings, as the occasion demanded, lending every possible aid to securing the complete vaccination of the citizens. The service rendered was so valuable and so evident that before long the mayor publicly and officially designated the members of the committee as an advisory board to the health officer.

Something of this sort is everywhere possible if the officials are considerately approached, a more recent instance having occurred at Natchez, where a society committee did splendid service during the epidemic of yellow fever.

X. DUTY OF REPORTING INFECTIONS.

One of the most difficult and embarrassing duties of a physician, and at the same time one of his most essential and responsible tasks is that of reporting cases of infectious disease. The patient and his family so earnestly desire concealment that the physician's position is most uncomfortable, but modern science has no hesitation in saying that his highest duty is to the community. Among the Italians in New Orleans a physician who reported a case of yellow fever was promptly discharged from attendance on all Italian cases. Yet Surgeon White, United States Public Health and Marine-Hospital Service, lays down the dictum: "A case of yellow fever known is a case of yellow fever extinguished." This truth was amply demonstrated at New Orleans during the past summer, and never again should it be necessary to fine physicians for failure to report cases. Preventive medicine is helpless in the face of epidemic disease unless every physician early recognizes and promptly reports every suspicious case.

In consequence it is the duty of the county medical society—the well-organized society that embraces within its membership every available physician in the county—to face and discuss this subject with a view to having every member recognize his solemn obligation to the commonwealth and to medicine. The proper support of the notification ordinance that every community should enact, it is easy to see, becomes a light task when there is complete unanimity among the physicians. Having, after consideration, agreed together to report every case of infection, the unreasonable citizen will learn that discharging his physician will not aid in concealment, and there will be an end to the application of the boycott to those physicians who do their duty. In many communities it will be feasible for the members to adhere to a "gentleman's agreement" to see that due punishment is administered to every member who is caught failing in this duty. It should be further agreed among the members that they will procure the punishment of all practitioners outside the society who conceal infectious cases. The execution of this plan will in a short time prove to be a great boon to the community, and will correspondingly increase the public respect for our profession.

The general action of the county societies on this question means something of vital moment to society, for such unanimous obedience to a good notification ordinance signifies that old-fashioned quarantine may forever be abolished.

Society Proceedings

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held Jan. 10, 1906.

The President, DR. JAMES M. ANDERS, in the Chair.

Chronic Acetanilid Poisoning, with Report of a Case Due to Absorption of the Drug from a Leg Ulcer.

DR. JAMES B. HERRICK, Chicago, read a paper with the above title which appears in this issue of THE JOURNAL, page 351.

DISCUSSION.

DR. ALFRED STENGEL spoke of the necessity of distinguishing between acute acetanilid poisoning, which is exceedingly common, and chronic acetanilid poisoning, which is rare. His experience is limited to five cases, three of which he had examined; two others he had seen, but was not permitted to report. The first case was one similar to that reported by Dr. Herrick. There were the marked changes in the blood, such as he had not seen in any other case, the very marked change in the character of the red corpuscles, with the very decided tendency to nucleated red corpuscles. The case was that of a young girl brought to the University Hospital to be under the care of Dr. Matthew H. Cryer for trifacial neuralgia. On her arrival from Connecticut she was in such a desperate condition that surgical treatment was not warranted and she was put under medical inspection. She was extremely cyanotic. By direction of Dr. Stengel, she was bled to the extent of six or eight ounces. Dr. C. Y. White was convinced of the presence of acetanilid poisoning and soon convinced Dr. Stengel of the truth of his theory. After investigation it was found that the girl was surreptitiously receiving acetanilid capsules and she afterward confessed. The case was one of those diagnosed as congenital heart disease. The diagnosis had been made by a distinguished clinician who, it was suggested, was a good deal occupied and had made a more or less casual examination. Among several other diagnoses which had been made of the girl's condition was that of mediastinal tumor. That such mistaken diagnoses should have been made was not a surprise, owing to the most remarkable changes through which the heart passed. It increased tremendously in size. She had had several attacks of acute dilatation with the appearance and subsequent disappearance of a loud systolic murmur, with corresponding increase and subsidence in the intense cyanosis. With the intense cyanosis the extremities were warm. This was one of the first features suggesting the true nature of the case. Dr. Stengel expressed his belief that such changes in the heart could not be produced without serious damage to the musculature. To have a heart suddenly dilate and spread an inch or an inch and a half, beyond peradventure of a doubt, and then pull itself together on the cessation of the drug and the cyanosis disappear, he felt could not but leave some impression on the heart.

Interesting features were presented in the two other cases he had examined. In one, that of a very intelligent man, there were symptoms of cyanosis of the fingers and lips, with a sort of steel-blue color of the skin. The man had been taking "Phenalgin," and showed what Dr. Herrick had called a peculiar moral perversity: When under the influence of the drug he denied taking it; when not under its influence, he was willing to confess his use of it. The third case was that of a woman who secured the drug without the attending physician's knowledge. Dr. Stengel's diagnosis was proved to be correct. While under his care he found it possible to induce cyanosis, which disappeared readily when the drug was stopped.

Aside from these intense cases, Dr. Stengel believes with Dr. Herrick in the existence of a large number of cases of acetanilid poisoning of minor grade. In his own practice he has seen cases of disturbance of heart action and of general health which he believed due to frequent ingestion of the drug in sufficient amounts to interfere with health. Because these are the cases most numerous, he believed them of the most importance to the profession. Here, again, he believed with Dr.

Herrick that if physicians were on the alert the cases would not be difficult to recognize. He admitted the possibility of their being mistaken for a number of conditions detailed by Dr. Herrick.

DR. S. SOLIS COHEN continued the thought expressed by Dr. Stengel that the physician should be constantly on the watch for the minor grades of acetanilid poisoning. In cases presenting ill-assorted and vague symptoms, explanations other than the true one might be given, unless some knowledge of the history, or unguarded remark of the patient directed attention into the right channel. He recalled the case of a very intelligent man who had been under his care for a number of years who had originally had attacks of migraine which he had himself treated by tablets bought at any drug store. These headaches and attacks of vomiting had been completely relieved by the use of glasses prescribed by Dr. George M. Gould. This case was an instance of true migraine relieved by proper refraction, the existence of which was looked on with doubt by a good many neurologists. Some time after passing from under Dr. Cohen's observation, and while spending the summer in the mountains, he was suddenly attacked with fainting, and he was informed by the examining physician that he had acute Bright's disease. He returned promptly to Philadelphia. Dr. Cohen's examination of the urine discovered the urine to be free from albumin, casts and sugar. It was learned that the man had been taking, when he felt tired, some bromo-seltzer. A further study of the case convinced Dr. Cohen that it was one of chronic acetanilid poisoning. In another case recalled by Dr. Cohen, in which the patient had had chronic heart disease, for some time the cyanosis was out of proportion to the cardiac lesion and investigation showed the bromo-seltzer habit. He is convinced that bromo-seltzer is perhaps the most common and most dangerous cause of chronic acetanilid poisoning among intelligent people.

One of the great dangers of chronic poisoning with coal-tar products was pointed out to be the sudden yielding of the heart to some unusual strain. Dr. Cohen further recalled the case of a young woman who had persisted in taking antikamnia, which had been originally prescribed for migraine. About a year after her marriage she died suddenly, following an apparently normal labor. The knowledge of the continued use of antikamnia during pregnancy gave the clue to the cause of death. The cases were cited as illustrations of the widespread habit of taking coal-tar products and of the hold which the habit takes on people, although warned against it. He pointed out the importance of recognizing the early changes resulting, and the importance also of not mistaking for serious organic disease of heart or kidneys the profound symptoms sometimes developed.

DR. HENRY LEFFMANN called attention to the probability that under the condition of the new Pharmacopeia there would be an increase in the cases of chronic acetanilid poisoning. This was because the Pharmacopeia had put on its list the compound powder of acetanilid, which was expected to take the place of antikamnia. He thought the motive had been to meet this very successful proprietary and others of its class. In his opinion it was bad judgment so to place it, since every pharmacist would feel at liberty to sell it for headaches. A few of the high-class pharmacists would sell phenacetin, but with the cheaper price of acetanilid the tendency would be to sell the latter. He recalled the statement of an English physician that many so-called rare diseases were possibly only exaggerated forms of common conditions, and that if physicians would learn to look for the marked symptoms they would find the disease to be far less common than supposed to be. He believed that the practice of taking these drugs was so excessive and so encouraged by prescribing druggists that many troubles were mistaken by physicians for conditions of real disease, whereas they were really conditions of acetanilid or other coal-tar products poisoning.

DR. H. C. WOOD, JR., thought that Dr. Herrick had made out a very good case of the non-existence of chronic acetanilid poisoning. It had seemed to him that Dr. Herrick's case, also that of Dr. Stengel, were those rather of a series of successive acute poisonings than of one chronic poisoning. There were not shown any of the characteristic symptoms following chronic poisoning; for example, as in sulfonal, the persistence of the symptoms after the withdrawal of the drug, and no permanent injury wrought by the prolonged use of the drug. Moreover, it was noted that Dr. Herrick in his experiments had been unable to produce any serious pathologic lesion in animals by the prolonged use of the drug. The symptoms had occurred immediately following the administration of very large doses of the drug, and persisted because the drug was persisted in until the animal died. It seemed to him, therefore, much more logical to regard the cases as repeated attacks of acute poisoning following the repeated ingestion of the poison.

This, of course, had no bearing on the existence of the drug habit. He thought there was a distinction to be made between the existence of the drug habit and the existence of poisoning produced by that habit. A point of interest to him was the suggestion that the cyanosis had occurred as the result of the ingestion of acetanilid. He thought it was commonly held that cyanosis is due to the presence of methemoglobin in the blood. Dr. Herrick and others, however, had failed to find any methemoglobin in the blood. If this were present in small quantities its existence might be difficult to prove. On the other hand, if present in only small quantity it could not account for the marked degree of cyanosis in these cases. He, therefore, thought that the large degree of cyanosis must be ascribed to the acute dilatation of the heart and failure of circulation characteristic of poisoning by the drug. It had been shown by Sänger that blood which has undergone chemical change with production of methemoglobin is not destroyed; that is, it is possible to restore hemoglobin to a corpuscle which has had its change of methemoglobin. The experiments of a German investigator have shown that in those cases in which the blood has undergone chemical change a larger proportion of oxygen will be taken up if the atmosphere is one of pure oxygen. He experimented with mice and found that in an atmosphere of pure oxygen they would withstand a dosage two or three times as large as a fatal dose. He also found that if he increased the pressure of the oxygen they would withstand a still larger dosage of the poison.

DR. W. M. L. COPLIN had not seen a case of chronic acetanilid poisoning and had had little experience with the acute forms. He referred to researches made under his direction on the influence of the coal-tar products on the protoplasm of the red blood cells. The work was especially in connection with the anilin dyes, acetanilid and antipyrin. Such marked changes in the red blood cells were found that on the cover-glass the blood lacked the color of ordinary blood. A point of diagnostic value mentioned was the appearance of the exudates when present. Nothing was found characteristic of actual nephritis. In concurrent work done with carbolic acid renal changes were very marked. From Dr. Coplin's work on the spleen of animals he regards with some skepticism reported instances of cirrhosis of the liver. One experimenter in a large number of dogs had observed a single case of cirrhosis of the liver. Concerning the micro-chemical reaction of the blood, the research work did not prove satisfactorily that there was any morphologic change in the blood which was at all characteristic. The striking feature was that there was no change in the tingeability of the blood explaining this peculiar hue of the freshly-dried blood.

DR. JAMES C. WILSON said that if the distinction suggested by Dr. Wood between repeated acute attacks and chronic acetanilid poisoning were to be observed, cases of the latter were indeed very limited. He cited his observation of a case showing the occurrence of a persistent symptom in a patient by whom large doses of acetanilid were taken every day. The patient, a man of about 26, under treatment for a couple of years for syphilis, had taken enormous doses of iodids. He had suffered much from headache, and there was noticed progressive tendency to cyanosis, which his attending physician tried to explain by some idiosyncrasy to the iodids. Coming under Dr. Wilson's care in the hospital, the character of the cyanosis and the cardiac symptoms with splenic enlargement led to the diagnosis of acetanilid poisoning. Investigation

showed that the patient had had migraine prior to the chancer, and had formed the habit of taking different kinds of headache powders obtained from the apothecary. During the treatment for syphilis he had taken "Orangeine" powders, never less than six or eight, sometimes as many as eighteen or twenty. Attempts to withdraw the drug were followed by outbreaks of intense headache. With the substitution of small doses of morphia without the knowledge of the patient all the symptoms disappeared and he left the hospital without having taken either acetanilid or morphia for two or three weeks and without the knowledge that he had had morphia. The point made by Dr. Wilson was that brought out by Dr. Herrick: that in some of these cases the original cause of distress may disappear and be replaced by a similar continuous suffering arising from the use of the drug itself. In Dr. Wilson's case the ultimate withdrawal of the acetanilid was followed by complete cessation of the headache for which the patient had habituated himself to the drug.

DR. DAVID L. EDSALL said that he had seen one case, whether coincident or otherwise, in which the man had developed chronic mental symptoms and had been placed in an asylum for the insane. He asked about the persistence of mental symptoms. In regard to the relation of the methemoglobin to the symptoms, in one case in which there was profound cyanosis examination of the blood and urine revealed nothing but oxyhemoglobin in the blood and in the urine and no methemoglobin. He said it was certain that the presence of methemoglobin was not a satisfactory explanation of the cyanosis. Reference was made to one authority on chemical analysis of urine who had cast much doubt on the existence of methemoglobinuria and who considered the vast majority of the reported cases due to erroneous observation. Dr. Edsall thought the same might be true of the blood.

DR. W. E. ROBERTSON said that his experience had been limited to two cases, one an acute case in which the infection occurred from an acetanilid dressing, and in which the symptoms subsided on the withdrawal of the dressing; the other, a chronic case, and in this the blood picture was similar to that presented in the discussion. In the chronic case, notwithstanding the great cyanosis, there was no dyspnea. It resembled very much a marked case of polycythemia, in which the cyanosis is of intense degree.

In connection with Dr. Wood's reference to the cases being regarded as instances of repeated attacks of acute poisoning rather than of chronic poisoning, he cited one observer who had noted on the complete withdrawal of the drug the persistence of the symptoms and also of mental symptoms.

DR. GUY HINSDALE said that in the early days of the use of acetanilid, when it was known by the name of antifibrin, he thought the drug was used much more freely and injudiciously by physicians than at present. He recalled the case of a young man with epilepsy, in whose treatment the remedy was used for two years, and this patient, on leaving the city for a year, had obtained a considerable amount, to be used continuously. On his return, while there was some cyanosis, no other bad effects were apparent. The effect on the epilepsy was not curative, but probably mitigating. At the present Dr. Hinsdale would hesitate to use the drug in the quantities in which it was formerly employed.

DR. HERRICK was inclined to regard the criticism of Dr. Wood of the term "chronic" acetanilid poisoning as a just one. He thinks that probably the action in these cases should be looked on as accumulative, and yet he does not believe that it has been definitely decided how permanent the damage done is. It can not be stated, certainly, that the heart muscle was not more or less permanently damaged, nor that the blood-making organs would be restored to their normal function. Neither was there certainty concerning permanent mental effects. He replied to Dr. Edsall that he could not answer his question regarding permanent mental derangement following chronic acetanilid intoxication. Most patients recovered promptly on the withdrawal of the drug. From the records of some of the cases he had observed that the finding of methemoglobin was somewhat doubtful, and felt that the examination for its presence should be very carefully conducted before it was declared to exist.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Treatment of Obesity.

A correspondent desires us to outline a course of treatment for obesity in a patient who has no other symptoms.

In outlining a treatment for obesity, the causes must be carefully looked into. In certain instances there is something wrong with the metabolism, consequently in the treatment overeating, excessive drinking, sedentary life, increased consumption of fats and carbohydrates, must be carefully regulated. Not infrequently a history of gout or diabetes is obtained, or perhaps anemia in some form is present. The age of the patient must also be taken into consideration when a reduction of fat is to be considered. Young individuals can not withstand such great and rapid reductions as those further along in life. In any case, in reducing flesh a gradual reduction should be the rule, and when a patient has lost from ten to fifteen pounds, after being placed on a strict diet, the diet should be made more liberal for a time. We can not recommend the administration of any preparations in a general way without a complete knowledge of the individual case. Thyroid extract is a preparation which is a valuable agent in some cases in the reduction of fat. It may be given in 5-grain doses three or four times a day; its effect on the heart, circulation and nervous system must be carefully watched, as it is very liable to produce an increased nervous condition and to cause subjective symptoms of the heart. About all that can be recommended in this case is placing the patient on a system of diet purported to such reduction of fat. We would recommend that form of diet advised by Banting, Oertel, Ebstein, Weir Mitchell or Yeo. Von Noorden, in Nothnagel's Handbuch, recommends the following diet list in such cases: At 8 o'clock 80 grams of lean cold meat, 25 grams of bread, one cup of tea, with milk and no sugar. At 10 o'clock one egg. At 12 o'clock one cup of strong broth. At 1 o'clock a small plate of meat soup, 150 grams of lean meat, flesh or fish; 100 grams of potatoes with salad; 100 grams of fresh fruit. At 3 o'clock one cup of black coffee. At 4 o'clock 200 grams of fresh fruit. At 6 o'clock one-quarter liter of milk with tea. At 8 o'clock 125 grams of cold meat or 180 grams of meat, raw and grilled, and eaten with radishes and salads; 30 grams of graham bread, and two to three teaspoonfuls of cooked fruit with sugar.

Management of Epilepsy.

In the management of epilepsy Thomas P. Prout, in *American Medicine*, recommends that the therapeutics be divided into medicinal, hygienic and dietetic. Since no two patients with epilepsy will present exactly the same outline for treatment, it must be necessary, therefore, to individualize. One patient, perhaps, will not be able to take care of certain articles of food which another may relish; one may have a heart lesion or a kidney complication, while another may possess a lymphatic diathesis with a persistent thymus. In those cases commencing late in life the possibility of a specific infection or of some condition capable of producing a sclerotic condition of the arteries must be taken into consideration. The possible existence of tenia, adenoids or eyestrain must also be considered. For the purpose of ameliorating the seizures, Prout recommends the bromids as the most important preparations. Their use in epilepsy, as has been established by experiment, depends on their ability to diminish cortical irritability. The effect of the bromid depends not so much on the amount administered and eliminated by the system as on the amount retained in the system, consequently he advocates, as do other authors, the withholding of the sodium chlorid from the food and substituting for that salt the sodium bromid in the cooking. In such medication, however, it is evident there are great difficulties in regulating the size of the dose, and also there is

greater danger of bromid intoxication, as under this form of medication the patients are more susceptible to the drug. He speaks of the method advocated by Clark as a more practical one. The patient then receives a dosage of sodium bromid at regular intervals, and at the same time the meats and vegetables are either unseasoned or but slightly seasoned with salt. The patient, after the fashion of the English, can easily be taught to eat the butter unsalted.

The dosage of the bromids, which constitutes the general treatment of epilepsy, must be increased until the seizures are under control. When this point is reached the dose should be held at that level for some time, and then gradually reduced. In order to ward off the bad effects of this preparation on the system, the skin must be kept active and the bowels kept freely opened. There is one thing which he speaks of and which must be carefully guarded against, and that is the danger of reaching such a high dose as to produce marked irritating action on the stomach and sebaceous glands. One of the channels for the bromid elimination is the skin, which becomes more or less easily irritated by the elimination, and paralysis of the glandular structure may result with the retention of its secretion. This condition, according to Prout, may be overcome by active physical exercise and by baths. The latter is a very important adjunct to the treatment of epilepsy. The cold pack at 70 degrees and of from three-quarters to an hour in duration, followed by a short cold shower and vigorous rubbing, is recommended. However, the pack must be properly applied, and the shower bath must be short and sufficiently cold to give a distinct shock, and the rubbing afterward must be vigorous.

Exercise must be varied to suit the individual case; it may consist of field games, such as tennis and golf, or croquet, or, perhaps, dancing in moderation, and in winter horseback riding. Epileptics, almost without exception, are given to excesses in diet, and there is a desire, as a rule, for those articles which can not be properly digested. This tendency is still more pronounced in the insane epileptics. The author speaks of the possibility of reducing the seizures in epilepsy fully one-third or one-half by simply regulating the diet. Consequently the diet list should be carefully prepared and placed in the hands of those who have charge of the patient. It should be simple, easily digested, and should exclude all coarse, highly seasoned and rich foods, coarse fruits or fried meats, and coarse or fried vegetables.

At the start, if the case is not a favorable one, milk and eggs should be the chief constituents of diet.

Dandruff.

The following combination is recommended by the *Journal of Medicine and Science* in the treatment of dandruff:

R.	Ammonii chloridii	ʒi	4
	Tinct. capsici	ʒiv	15
	Aquæ q. s.	℥vi	180

M. Sig.: Apply to the scalp night and morning with vigorous friction.

Bronchial Asthma.

The same periodical recommends the following combination in the treatment of bronchial asthma:

R.	Ammonii iodidi	ʒiss	6
	Extracti grindelia robustæ, fld	ʒvi	25
	Tinct. lobeliæ	ʒiii	12
	Tinct. belladonnæ	ʒiiss	10
	Extracti glycerrhizæ, fld	ʒii	60
	Syrupi tolutani, q. s. ad	℥iv	120

M. Sig.: One teaspoonful in water three or four times a day.

Epistaxis.

In severe epistaxis the same periodical recommends that a swab be dipped in Monsell's solution of iron, inserted into the nostril, and so turned as to touch the different portions of the mucous membrane, and a pledget allowed to remain in the nares. If this does not check the bleeding another piece of gauze should be inserted beside the first. They should be allowed to remain until coagulation has taken place; the following day the plug may be removed.

Carnot recommends gelatin as a valuable agent in checking epistaxis. Five parts of gelatin should be dissolved in 95 parts of sterilized normal salt solution, and applied locally by injecting it into the nostril, and then smearing it on cotton or gauze and introducing that into the nares. The solution when used, should be at about the body temperature. It may be used in the checking of hemorrhage from surface wounds or varicose veins, but is not reliable in hemorrhage from the stomach, because it undergoes digestion; it may be injected when sterilized into the uterus to check uterine hemorrhage. Shurley, in his "Diseases of Nose and Throat," suggests in persistent epistaxis that Veeder's method be employed. This consists in introducing a tampon consisting of a thin rubber bag and filling it with air or water. Another plan is to push well into the nasal passage a fold of glycerin paper or oiled silk in the shape of a glove finger and when it is *in situ*, to fill it with bits of gauze or cotton until the nasal passage is completely packed. A long strip of cheesecloth previously soaked in a solution of hydrogen peroxid can be folded and pushed into the cavity by a probe. Tampons should always be employed in severe cases of epistaxis. The only objection to such treatment is the possible danger of setting up an inflammation with, perhaps, destruction of the mucosa, which, in case of posterior plugs, may lead to disease of the middle ear through the Eustachian tube or to inflammation of the lining membrane of the accessory cavities of the nose.

Medicolegal

Coloring Milk with Annatto.

The Supreme Court of Missouri says, in the case of the City of St. Louis vs. Polinsky, that it is within the common knowledge that the quality of milk depends largely on the nature of the food that cows are fed on; that cows fed on grass, clover or other fresh green food give a quality of milk superior in richness and appearance to that drawn from cows fed on refuse, or winter foods. By adding annatto to the white milk or cream given by winter-fed or poorly-fed cows, a deception is practiced on the milk-consuming public by making this milk of inferior quality assume the rich and golden appearance of superior milk. Such conduct is a fraud and deception on the public and an unfair advantage over honest competitors who refuse to resort to such deception. And the court holds that it is competent for the legislature or municipal assembly to prohibit the use of artificial colorings, such as annatto, calculated to deceive. Indeed, it says that on this point there seems to be much nanimity in the deliverances of the courts of last resort.

Meaning of Word "Body"—Physicians as Witnesses.

The Supreme Court of Illinois says that, in L gin, Aurora & Southern Traction Co. vs. Wilson, a personal injury case brought by the latter party, it being alleged that divers bones of the plaintiff's body had been broken, and the proof showing a fracture of the tibia of the left leg and an injury to the right elbow, it was argued that there was a clear distinction between the body and the limbs of the body, and that consequently there was a variance between the allegations and the proof. But one definition given by Mr. Webster of the word "body" is "the entire physical part of a man." This meaning was properly to be given the word as employed in the allegations. It was not essential that there should be greater particularization as to the bones that were broken.

A physician or a surgeon who has treated a patient, the court further says, may express an opinion as to the physical condition of such patient, based on information gained while so administering professionally for the affliction, or a physician may testify as an expert from information obtained from a physical examination of the person who is the subject of the inquiry. If the opinion of a physician is desired on the case made or claimed to be made by the testimony produced on the hearing, he should not be permitted to state his opinion based on the conclusion arrived at y himself as to the case made

by the evidence as he heard it and gave it weight. The proper course is to state hypothetically the case which the party producing the witness thinks has been proved, and to ask an opinion based on such hypothetical case. The jury, who are the judges as to what has been proven, may then apply the opinion of the expert, if, in their judgment, the state of the case on which it was based has been proven. To permit the expert to base an opinion on the testimony as he construes it and has weighed it would be to permit him to exercise the functions of the jury and, in a sense, decide the whole issues for them.

Constitutionality and Application of Practice Act.

The Constitution of the State of Washington provides that "no act shall ever be revised or amended by mere reference to its title, but the act revised or section amended shall be set forth at full length." In the case of State vs. Lawson, a prosecution for practicing medicine without a license, it was contended that there was no law in the state of Washington authorizing the licensing of persons to practice medicine and surgery; that the act of 1890 was entirely superseded by the amendatory act of 1901. The basis of this contention was that the amendatory act of 1901 did not set forth at full length the sections of the original act which were not amended, as it was claimed the Constitution required. But the Supreme Court of Washington says that, whatever support this connection might find in the earlier decisions of the courts of Louisiana and Indiana, it is no longer considered as sound. And it holds that the unamended sections of the act of 1890 and the three sections as amended by the act of 1901 are in full force and effect and constitute the law on the subject under consideration.

The uncontradicted testimony in this case showed that the defendant practiced medicine as defined by the statute. Did he have a license so to do? The testimony tending to show that he had no such license was the following: (1) The testimony of the secretary of the state board of medical examiners to the effect that he never obtained a license from said board; (2) the testimony of the county clerk of King County to the effect that no license or certified copy of a license was of record in his office, and (3) the testimony of the county auditor of King County to the effect that the defendant's name did not appear as a licensed physician in the records of his office. The defendant contended that, notwithstanding all such testimony, he might have been duly licensed in some other county in the state prior to the passage of the act of 1890, and such license not appear in any of said offices. This, the Supreme Court, which affirms a conviction, says, was, no doubt, true, but the statute makes the records of the clerk's office *prima facie* evidence of the existence or non-existence of a license. The defendant conceded this, but said that the statute declared an arbitrary and illogical rule of evidence, and was, therefore, unconstitutional.

The court's answer is: Where a license issued in any county of a state authorizes the prosecution of a business or the practice of a profession in any part of the state, the difficulty of proving that a given person has no license is very great. This fact has induced many of the states to enact laws imposing on the defendant the burden of proving a license in all prosecutions such as this, and these statutes have been declared constitutional. Wharton's Crim. Ev. (9th Ed.), Section 342; Commonwealth vs. Curran, 119 Mass., 206. If the state can require the defendant to justify under his license in the absence of any proof whatever, it goes without saying that it can likewise declare what character of proof shall constitute *prima facie* evidence.

May Prohibit Placing of Preservatives in Milk.

The Supreme Court of Missouri says that the real question in the case of the City of St. Louis vs. Schuler was whether it was competent for the legislature or the municipal assembly of the city to prohibit the preservation of milk by placing a preservative therein. It was contended that the provision in question against the use of any preservative in milk was to be distinguished from those cases sustaining the exclusion of annatto and other coloring substances, for the reason that the use of a preservative does not tend to deceive or mislead purchasers and consumers. But the court thinks that the ground on which the use of preservatives in milk rests is the right of the legislature, or in this case the municipal assembly, to pass all needful and proper ordinances to secure the purity of milk, and to prevent any tampering with milk by absolutely prohibiting the use of artificial preservatives therein. The argument that a preservative stands on a different basis from mere coloring matter which is liable to deceive is more plausible than sound. It is a matter of common knowledge that milk is a necessary food of the sick and of the infirm, of the old and the young, that through the agency of impure milk the germs of many diseases are disseminated, and, even where there is an absence of any deleterious impurity of the germs of specific diseases, adulterated or diluted milk is not wholesome and nutritious.

Again, it was insisted in this case that, because formaldehyde works such a chemical change in the character of milk that it will not sour, and because it is for this reason classed as a preservative, the municipal assembly could not lawfully prohibit its use in milk. But the court states that evidently it can not be said that the effect of formaldehyde in milk is so well known not to be deleterious that the courts must take judicial cognizance of that fact. That its action is such that it changes the chemical properties of the milk so that it will not sour was established and conceded on the trial, and it was for this reason that it was insisted that, as it preserved the milk from souring, it was claimed to be highly beneficial. The court can not accept this conclusion.

It must be recognized, the court continues, that it was a legislative function in the passage of the ordinance in question for the preservation of health to insist that milk should have neither adulterants or preservatives placed in it, and to inquire as to the effect thereof. The municipal assembly may have investigated and found this very fact, that, when formaldehyde or boracic acid was placed in milk, it would change its chemical properties and prevent it souring and prevent it going the natural processes of oxidation and decomposition, and that thereby the housewife desiring to have the milk sour for culinary purposes, or the physician administering it as food to children and sick persons would be misled in his calculations as to its effect on his patient. But, in addition to this, the municipal assembly might well have reasoned that, while one preservative used in carefully prepared proportions might not be injurious to the health of consumers, it would be exceedingly dangerous to permit the venders of milk, with little or no scientific knowledge and less scruples, each to select his own so-called preservative and use it without knowledge as to the quantities which were safe. This would open the door to all sorts of dangerous adulterations and to the use of highly injurious processes, and the discovery of such practices might never be made until incalculable injury had occurred. The only safe course, considering the nature of the business, was to prevent absolutely the placing of such preservatives in milk. In so doing the municipal assembly in no manner destroyed or affected the defendant's right of property.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 20.

1 Acute Osteomyelitis; A Plea for Early Diagnosis. E. King, Fulda, Minn.
2 Medicinal Plants of Angola, with Observations on Their Use by Natives of the Province. F. C. Wellman, Angola, Africa.
3 *Etiology, Symptomatology and Treatment of Anal Fissure. H. A. Brav, Philadelphia.
4 Diagnosis of Incipient Genitourinary Tuberculosis. G. F. Lydston, Chicago.
5 *Ectopic Gestation. W. H. Randle, Philadelphia.
6 *Diabetic Purpura. C. H. Lefcowitch, Philadelphia.

3. **Etiology, Symptomatology and Treatment of Anal Fissure.**—The method of operation employed by Brav is divulsion with incision, at the same time trimming the indurated margin of

the wound, and curetting the base. The bowels should be kept confined for three days, and after this time daily movements are secured by laxatives. The ulcer usually heals in about two weeks.

5. **Ectopic Gestation.**—Randle believes that in many fatal cases in which death is said to be due to so-called heart disease and other causes, in reality it is due to internal hemorrhage from ectopic gestation. He says that in cases of doubtful diagnosis a small vaginal incision may be made through the posterior vaginal vault, when the escape of free blood will verify the diagnosis. The treatment is invariably surgical. As little of the anesthetic should be used as possible, and stimulation should be withheld until the bleeding point is secured. When the abdominal incision is made no attention should be paid to the enormous quantity of blood that usually gushes forth, but the surgeon should place his hand directly on the ruptured tube and clamp the bleeding parts. After this, vigorous stimulation may be employed. The blood clots should be taken out rapidly and the abdominal cavity flushed with a large quantity of sterile saline solution. A quantity of this fluid may be allowed to remain in the pelvic cavity. Drainage is rarely necessary; in fact, it is detrimental. In all cases in which a hematocele has formed, a vaginal incision may be made with the evacuation of the clots which lie in large quantities in the pelvic cavity; but the patient should be prepared for the abdominal operation, should it prove necessary, because of the recurrence of hemorrhage.

6. **Diabetic Purpura.**—Lefcowitch reports the coexistence of purpura and alimentary glycosuria in a boy of 3. The patient was nervous and suffered from enuresis and a stomatitis of moderate severity. After two months' treatment, largely dietetic, the boy apparently made a complete recovery. One year later the patient presented the typical aspect of a true diabetes mellitus, but no symptoms of purpura. After nine months' constant attention, the boy remains comfortably healthy while under a judicious diet. Lefcowitch emphasizes the importance of urinary examinations in the infant and child in making a diagnosis and in the study of metabolism.

Medical Record, New York.

January 20.

7 *Immunization in Tuberculosis. K. von Ruck, Asheville, N. C.
8 *Facts Concerning Cancer of the Stomach. C. N. Dowd, New York.
9 Digestive Disorders and Abdominal Pain. J. F. Erdmann, New York.
10 Distribution of Mosquitoes in the United States. C. S. Ludlow, Washington, D. C.
11 *Use of the X-Ray in the Treatment of Certain Diseases of the Skin. F. Wise, New York.
12 *Earache. A. Bardes, New York.

7. **Immunization in Tuberculosis.**—Von Ruck gives clinical results and observations from administration of his own preparation. Taking cases in the early stages of tuberculosis and phthisis, he shows a recovery in 161 out of 171 patients, or 95.5 per cent. Ten patients left the institution satisfied with the results, or continued the treatment at home. Patients further advanced showed a recovery of two-thirds, or 66.3 per cent., with a 27 per cent. result from those in a critical stage of the disease, a condition which would not be obtainable for the most favorable class of tuberculous patients without immunization.

8. **Cancer of the Stomach.**—Dowd calls attention to the large number of deaths resulting from gastric cancer. The census report for 1900 shows that there were at least 9,000 deaths from cancer of the stomach in the United States during that year; this is 65 per cent. more than from appendicitis, and statistics indicate that it is on the increase. He emphasizes the fact that cancer of the stomach is primarily a surgical disease, and considers the mortality from the operation no greater than that from others that are frequently performed. It is important to make an early diagnosis while there is still a fair prospect of cure. Kocher found that the initial symptoms were loss of appetite and pyrosis; that epigastric discomfort often preceded the vomiting by months, and therefore this symptom, which he considered most important, was not constant. Dowd found it in 73 per cent. of his cases, and it had generally existed about seven months before admission to the hospital. Sometimes it was present after every meal, at others only at irregular intervals. Pain, though not so characteristic, is also an important symptom. Exploratory operation is valuable in helping to establish the diagnosis. A small incision of one and one-half or two inches between the umbilicus and ensiform cartilage is sufficient for the introduction of the finger.

11. **X-Ray in Certain Skin Diseases.**—Wise summarizes his paper as follows: (1) The *x*-ray will cure ringworm and favus of the hairy skin more rapidly and reliably than any other method of treatment; the advantages of the method are, that it is painless, harmless when properly used, and thorough, and that it cuts down the expense incurred by the city in the treatment and care of these patients to a very considerable extent. (2) Hypertrichosis should be treated with electrolysis, not with the *x*-ray. (3) The *x*-ray gives very satisfactory results in the various forms of cutaneous tuberculosis; in keloid, in keratoses, in infiltrated patches of chronic eczema, lichen planus, pityriasis rubra; in the tubercles, ulcers and tumor masses of mycosis fungoides, psorospermosis and sarcoma. (4) *X*-radiation relieves pruritus, burning, tingling and pain; it decreases the discharge and foul odors of various dermatoses, often causing them to disappear completely. (5) In selected cases, radiotherapy is the ideal agent in the treatment of epithelioma and rodent ulcer.

12. **Earache.**—Bardes says that as soon as earache begins the patient should be kept quiet, put to bed and placed on a fluid diet, and in other ways treated as one would treat a patient with a high fever. The bowels should be kept open, and a single dose of morphin, he states, may be given to insure rest and comfort. Dry heat or else an ice-bag can be applied to the ear. The former is more acceptable to most patients. Every three hours the ear should be gently irrigated with a hot solution of bichlorid 1 to 5,000, after which a few drops of a 12 per cent. solution of carbo-glycerin can be instilled. Under no consideration should a person be allowed to suffer pain longer than twenty-four hours. If the pain continues, and the drumhead is inflamed and distended, palliative measures are worse than useless, and any attempt to abort the inflammation by means other than surgical is dangerous, and valuable time is lost in so doing. A bulging drumhead should be treated in the same way as a septic formation in any other place. It should be freely incised, rather than simply punctured or allowed to break.

New York Medical Journal.

January 20.

13 Primordial Nature of the Forces Exerted Against the Penetration of Bacteria Beneath the Surface of the Body. J. Wright, New York.
14 Maintenance of Asepsis. D. H. Craig, Boston.
15 Some of the Uses of Pelvic Massage. J. T. Johnson, Washington, D. C.
16 *Therapeutic and Prognostic Value of Occult Hemorrhage in the Stools. J. D. Steele, Philadelphia.
17 The Sharp Curette within the Uterus. B. Robinson, Chicago.
18 *Rupture of the Symphysis Pubis; Report of a Case and Method of Repair. T. B. Eastman, Indianapolis.
19 *Present Status of Surgical Operations on the Insane. L. Braun, New York.
20 Migration of Helminths. H. Page, U. S. A.
21 Congenital Hernia of the Umbilical Cord. E. W. Meredith, Pittsburg.

16. **Occult Hemorrhage in the Stools.**—The conditions in which the tests for occult blood in the feces will be of prognostic and therapeutic value in the course of gastric ulcer are said by Steele to be as follows: First, to determine the length of the various periods of the medical treatment of ulcer. Second, to detect the tendency to bleeding during the course of gastric ulcer and by appropriate medical and surgical measures to anticipate and prevent serious hemorrhage. Third, to determine when the medical treatment may be considered to have failed and surgical treatment is indicated. Fourth, perhaps the test may prove helpful under certain circumstances in detecting the development of a cancer on the floor of an ulcer.

18. **Rupture of Symphysis Pubis.**—In a case reported by Eastman, the patient was operated on by a modification of the method devised by Farabœuf for suturing the symphysis after symphyseotomy. The operation employed in this particular instance is described as follows:

In order to avoid a possible injury to the vessels and nerves adjacent to the clitoris, a crescent-shaped incision four inches long and following the curve of the pubic arch was made. The subjacent fat was dissected away, and the anterior surface of the bodies of the pelvic bones exposed. The ends of the bones were found separated about an inch and a quarter, while the intervening space was filled with a semi-solid substance which was readily removed with the handle of the scalpel. The posterior surface of the bone was not exposed nor was the space of Retzius opened except as the removal of the intervening substance exposed it to view. The articular surfaces of the bones were well scraped. Two holes in either side were now drilled through the bone from a point on the anterior surface one-half inch from the articular surface and emerging on the posterior surface one-fourth inch from the articular surface. Through these apertures heavy silver wire was introduced, the parts brought together by strong pressure on the trochanters and the wires twisted to remain. Union was perfect in thirty-six days. Catgut has been used by various operators. In view of the strain, iron wire may be preferable.

19. **Operations on the Insane.**—The observations recorded by Broun were confined to cases of abdominal and pelvic surgery. Of 51 operations for displaced uteri, associated with a repair of the cervix ard perineum where indicated, the mental recovery was hastened with three patients by the correction of the pelvic abnormalities. On two of these patients a curettage and a shortening of the round ligaments by Alexander's operation was done. On a third, the peritoneal cavity was entered through an anterior vaginal incision and through this opening the round ligaments were shortened; the torn perineum was also repaired. The mental condition of these three patients was acute mania, chronic melancholia and primary dementia. Broun thinks that the following facts have been established: 1. If the operation when needed has been properly done and the patient not mutilated by an uncalled-for castration, the mental condition is never aggravated by such a procedure. This he states, has been the experience of Manton, who has been operating for over twenty years, also that of Picqué, whose operations have extended over a period of twelve years, as well as his own experience in the entire range of his surgical work among the insane. 2. There exists among the patients confined in the various insane asylums many who are suffering in a quiet, uncomplaining way from pathologic conditions. They have a right to be given relief irrespective of their mental state. 3. Under the stimulus of the improved somatic state resulting from surgical relief some of the patients show greater mental changes under the moral and therapeutic care than was shown before such relief was given. At times this improved mental state continues to one of recovery.

Boston Medical and Surgical Journal.

January 18.

22 *Open-air Treatment of Bone Tuberculosis at the Wellesley Convalescent Home. E. H. Bradford, Boston.
23 *Relation Between Human and Bovine Tuberculosis; Effect on Inmates of Public Institutions. T. Smith, Boston.
24 *Should the Tuberculous Insane in Hospitals be Segregated? O. F. Rogers, Danvers, Mass.
25 What Should be the Policy Regarding Tuberculosis in Insane Asylums. O. Copp, Boston.
26 What Special Instructions Regarding Tuberculosis Should be Given Institution Nurses and Other Employés? J. H. Nichols, Tewksbury, Mass.
27 Importance of Early Diagnosis in Pulmonary Tuberculosis. H. C. Clapp, Boston.
28 Treatment of Tuberculosis in Public Institutions. W. Tileston, Long Island Hospital.
29 Suppression of Tuberculosis in Dairy Herds. A. Peters.
30 Day Sanitarium for Consumptives. Parker Hill, Boston, D. Townsend, Boston.

22. **Open-Air Treatment of Bone Tuberculosis.**—Bradford cites thirty cases of patients treated successfully at the Wellesley Convalescent Home, showing the condition of these patients ten and twenty years after the cessation of the treatment. He says that the success obtained in these cases should stimulate all efforts in the treatment and control of joint and bone tuberculosis, in which the open-air treatment is by no means the least.

23. **Human and Bovine Tuberculosis.**—Smith states that in institutions in which children are cared for the source of the milk used should receive careful attention, and that herds belonging to the institution should be free from any traces of tuberculosis. In institutions harboring adults there need be less anxiety on this point, and if all animals of reduced vitality or whose udders are not above suspicion are eliminated, the danger of infection may be regarded as exceedingly small. A careful periodic inspection of dairy herds can not be dispensed with, and such inspection should be made a necessary function of state and local boards of health, or of specially organized bureaus, in order that any advanced cases of tuberculosis may be detected, removed and destroyed. More than this can not be demanded at present in the interest of public health.

24. **Segregation of Tuberculous Insane.**—Rogers is of the opinion that segregation offers a rational, practicable, and not too expensive remedy for conditions that urgently demand relief. The trustees and superintendent of the Danvers Hospital, impressed by this fact, decided that segregation of the tuberculous is the only available remedy. For three years eight or ten female patients were kept in tents on the lawn during the summer months. They enjoyed the tent life and several made rapid improvement. Encouraged by the result of this experiment, the superintendent recommended that two buildings should be erected of capacity sufficient to accommodate all the tuberculous patients in the hospital. These buildings are now nearly completed. Each building will shelter fifteen patients. They are practically alike, one for women and the other for men. They are about 76 feet long and 21 feet wide. They front the south. Each has a piazza ten feet wide running the whole length of the front of the building. The front is nearly all glass, and there is considerable glass in other portions of the walls. The windows are double, and above each window is a glass transom, and all can be raised or swung. The buildings are heated by steam pipes running beneath the windows on three sides of the wards. Fresh air is taken directly through the walls. A sheet iron arrangement causes the air to flow over the steam pipes before it enters the wards. Each building has two wards, 30 feet by 20 feet, 13 feet high, with a room between them 16 feet by 20 feet, containing a fireplace. There is a bathroom and a dressing-room which can be kept warm at all times. The walls are lathed and plastered and painted with lead and finished with a coat of enamel. The floor is covered with inlaid linoleum of the best quality. There are openings for ventilation in the ceilings and gable ends. The wards are lighted by electric light. There are no window guards.

Lancet-Clinic, Cincinnati, Ohio.

January 20.

31 Pathology of Nephrolithiasis. H. J. Whitacre, Cincinnati.
32 Pathology of Stone in the Kidney. W. H. Crane, Cincinnati.
33 Clinical History of Renal Calculus. E. W. Walker, Cincinnati.
34 Treatment of Renal Calculus. J. C. Oliver, Cincinnati.
34½ *An Improved Urethrotome. W. E. Washburn, Kewanee, Ill.

34½. **An Improved Urethrotome.**—The instrument devised by Washburn in the main resembles the usual urethrotome. The distinguishing feature of the instrument is a cutting knife which is guided by a filiform bougie. The knife protrudes from the end instead of from the side, as in other instruments, and is protected so that it only cuts when and where desired. The bougie is first introduced through the stricture or strictures down into the bladder. The knife is then put in position in the instrument by passing the notched end uppermost through the groove until it is enclosed in the end of the instrument. This knife is held in place by a set-screw. The knife and instrument, when ready for use, are threaded and the instrument is passed into the urethra up to the stricture. The urethra is then dilated, and with the thumb-screw on the side of the instrument, the knife is turned out of the end of the instrument down to the stricture. After the stricture has been cut, the knife is withdrawn in the same way, and the dilated instrument is closed. Other strictures, if present, are cut in the same manner. The knife cuts through the center of the stricture both anteriorly and posteriorly, thus lessening the liability of a contraction result. The knife working in front of the instrument is said to make a clean cut instead of a laceration, thereby rendering infection less liable and healing more prompt. Washburn says that the instrument does not cause any irritation of the urethra.

University of Pennsylvania Medical Bulletin, Philadelphia.

December.

35 A Schematic Eye. E. T. Reichert, Philadelphia.
36 *Tuberculous Peritonitis; A Statistical Review. W. T. Cummins, Philadelphia.
37 Cage for Use in Metabolism Experiments on Dogs: New Method for the Preservation of Meat Used in Such Experiments. P. B. Hawk, Philadelphia.

38 Comparative Study of the Systematic Action of Potassium Sulphocyanid. E. Lodholz, Philadelphia.
39 Suggestions for Preventive Medicine in the Country. A. C. Abbott, Philadelphia.

36. **Tuberculous Peritonitis.**—Cummins reviewed 3,405 autopsy records of four hospitals. Of these 835 cases, or 24.5 per cent., presented some type of tuberculosis. In addition 76 records showed healed tuberculous foci. Tuberculous infection of the peritoneum was found in 92 cases, or in 2.7 per cent. of the total, and in 11 per cent. of the cases of tuberculosis. Males were more frequently affected than females, in the proportion of 2 to 1. The disease was most prevalent between the ages of 20 and 40 years, and these cases represent over 40 per cent. of the total. Cummins says that after the fiftieth year the disease is comparatively rare in the female. Cases are rather more frequent in the negro than in the white race. The most frequent complication is tuberculosis of the lung. Among women genital tuberculosis is responsible for 40 per cent. of the cases. Among men only a small percentage show some lesion of the genitourinary tract. The other serous surfaces are frequently involved, but instances of true serositis number about 5 per cent. of the peritoneal cases. In laparotomies the fibrous form of the disease gives the greatest percentage of cures, and the ulcerous the smallest percentage. The average mortality is about 3 per cent. Not a few cases undergo spontaneous cure, but the ulcerous form is incapable of such restitution.

Therapeutic Gazette, Detroit, Mich.

December 15.

40 *Treatment of Shock, with Special Reference to Strychnin. W. W. Keen, E. E. Montgomery, E. Martin, J. C. Da Costa, W. L. Rodman and E. LaPlace, Philadelphia.
41 Management of Cases of Diabetes Mellitus. J. Tyson, Philadelphia.
42 Treatment of Insanity with Special Reference to Extramural Cases. F. X. Dercum, Philadelphia.
43 *Certain States of Vascular Spasm and Fibrosis. H. A. Hare, Philadelphia.

40. **Treatment of Shock.**—Keen has practically given up the use of strychnin and has substituted adrenalin for it. Montgomery does not believe strychnin to be the best drug for continued use. He says that after the preliminary dose of strychnin better results can be secured from the administration of some preparation of aseptic ergot. Next to intravenous injection of salt solution he has learned to rely on ergot as the most effective agent in shock. Martin says that the only drug which seems to have a distinct action in desperate cases is adrenalin chlorid. This, to be effective, must be given intravenously in extreme dilution (1 to 20,000 normal salt solution) and allowed to flow slowly into a vein. It is transitory in its effects, however, and the injection may have to be repeated. This may be done for from twelve to twenty-four hours through a cannula left in the vein.

Da Costa favors adrenalin administered intravenously with salt solution, and given very slowly and gradually for a considerable time. Rodman says that in mild cases due to anesthesia and the operation combined nothing more is required than oxygen, a decided lowering of the head, and artificial heat. In cases of moderate severity, in which the temperature is from one to two degrees below normal, but unaccompanied with great cardiac and respiratory involvement, enemata of hot coffee and whisky or enteroclysis of hot saline solution, in addition to position and artificial heat, will be all that is necessary. If in addition to a cold, clammy skin, and temperature 96 F. or below, there is much pain, a hypodermic of 1/6 grain of morphin with 1/150 of atropin is added to the above. Hypodermoclysis may be substituted for or used in conjunction with enteroclysis. If the pulse is short, frequent and jerky, above 130, and of poor volume, intravenous infusion, preferably with adrenalin chlorid, is called for; one-half pint to a pint, frequently given, is better than three or more pints at once. Laplace thinks that strychnin as a cardiac tonic is of the utmost value, but that it fails in its purpose if the circulation be at the time too weak to have it produce a stimulating effect on the brain. It is, however, the best agent for reducing shock to a minimum during an operative procedure.

43. **Vascular Spasm and Fibrosis.**—Hare emphasizes the following points: In cases of high tension due to fibrosis the nitrites can be of but little value, and the iodids, with rest and massage, are needful. Cases of very high tension are usually those in which the heart escapes sufficiently to help maintain the tension. As fibrosis in the peripheral vessels increases, the muscles of the larger vessels undergo hypertrophy, as does that of the heart. It is quite as possible or vascular compensatory hypertrophy to rupture as for the cardiac compensatory hypertrophy to do so. This rupture of vascular hypertrophy often gives the heart a rest and permits it to recover from its fatigue, and so life is saved. It is possible, if the peripheral fibrosis is arrested, for the vessels also to regain power and for a general improvement to ensue. The cardiac stimulants are not needed in these cases as much as rest and the skillful use of alteratives and vascular sedatives.

Texas Medical News, Austin.

December.

44 Prayer and Medicine. A. S. Garrett, Springtown, Texas.
45 *New Method for Generating Formaldehyd Gas. E. P. Schoch
46 Whooping Cough. J. R. Landers. Bernadotte, Ill.
47 Tetanus. W. N. Watt, Austin.

45. **New Method for Generating Formaldehyd Gas.**—Schoch claims for his method that it has the advantages of not requiring any special form of apparatus, of cheapness and freedom from danger of fire. The following substances are required: Good quicklime in lumps, commercial sulphuric acid, and ordinary 40 per cent. formaldehyd solution. A shallow vessel of earthenware or metal is all the apparatus necessary. Sulphuric acid may be purchased at any drug store for 10 cents a pound, and 40 per cent. formaldehyd solution for from 40 to 50 cents per pound. For every 1,000 cubic feet of space are required one pound of formaldehyd solution, one-half pound of sulphuric acid, and three pounds of quicklime. It has been found that just half of these quantities are enough for 1,000 cubic feet, but to guard against excessive loss by leaks these quantities are recommended. The acid and the formaldehyd are first mixed in an earthenware vessel by pouring the acid into the formaldehyd. Then the lime is placed in the shallow vessel in the center of the room. All openings to the room are carefully closed, the mixture is poured on the quicklime, and the operator leaves the room. The rooms should remain closed for from five to eight hours.

American Journal of Surgery, New York.

December.

48 Plaster of Paris and How to Use It. M. W. Ware, New York.
49 Nerve Blocking to Prevent Amputation Shock; Illustrative Reports of Two Thigh Amputations. H. B. Gessner, New Orleans.
50 *Some of the Fallacies of the Clinical Diagnosis of Gonorrhea. G. F. Lydston, Chicago.
51 Radical Cure of Chronic Nasal Suppuration. A. P. Voislawsky, New York.
52 Umbilical Cord Hernia. M. M. Moran, Pinner's Point, Va.
53 *Bartholinitis; Radical Cure by a Simple Measure. A. E. Gallant, New York.

50.—See abstract in THE JOURNAL, Oct. 28, 1905, page 1352.

53. **Radical Cure of Bartholinitis.**—When occlusion of the duct results with marked distension of the gland, interfering seriously with locomotion and causing such discomfort as to demand immediate relief, Gallant exposes the inner surface of the labium minus and injects into the mucous membrane over the most prominent portion from five to ten minims of a 4 per cent. cocain solution, or places a pledget of cotton, saturated with a 10 per cent. cocain solution between the labia until anesthesia is complete. With a pair of plain thumb-forceps, traction is made on the most prominent portion of the gland (taking care not to rupture it), on the inner surface, and with scissors curved on the flat an ellipse of tissue is cut out, including mucous membrane and gland wall, to the extent of one-third of the sac. When the gland is markedly distended and the sac wall thinned, the first cut will usually bring away enough of the sac, but in some instances the sac contracts so closely that it is necessary to cut away, in circular fashion, more of the wall. Occasionally, when the gland has not been markedly distended, bleeding may necessitate the application of catgut ligatures at one or two points. Immediately following the first cut of the scissors, the contents gush out, and the sac contracts, the swelling diminishes to one-third, leaving an irregular circular opening, the base of which is formed by the remnant of the sac wall. This presents an important

point so frequently overlooked when incising for evacuation of abscesses, viz., that with linear incisions the cut edges fall together in close apposition and readily unite, sealing the cavity; whereas elliptical or circular incisions can not assume a position favorable to such coaptation and, therefore, remain open and drain the cavity, and healing must take place from the bottom. When a true abscess is present, the remaining sac wall will be cast off by granulation; but when the condition is that of a retention cyst, the edges of the sac wall and mucous membrane will unite to fill in the gap made by the excised mucous membrane. The only dressing used has been a pad of sterile absorbent gauze, on which has been poured a small quantity of a mixture consisting of balsam of Peru, 5 per cent., and oleum ricinis, 95 per cent., placed between the labia, to be changed and replaced by the patient each time she urinates. No packing or sutures are required, and the patient can at once walk with freedom from suffering, and with little interference with the ordinary gait. The healing is complete within from seven to ten days.

Surgery, Gynecology and Obstetrics, Chicago.

December.

54 *Experimental Study of the Local Effects of Peritoneal Drainage. J. L. Yates, Chicago.
55 *Treatment of Acute Perforation of the Upper Abdominal Viscera. V. B. Knott, Sioux City, Iowa.
56 Surgical and Pathologic Studies on Callous and Other Gastric Ulcers. E. Ries, Chicago.
57 Study of Ranula. P. F. Morf, Chicago.
58 *Treatment of Retrodisplacements of the Uterus by Operations on the Round, Uterosacral and Uterovesical Ligaments. J. W. Bovée, Washington, D. C.
59 *Hyperalgetic Zones in Gunshot Wounds of the Head. E. C. Riebel, Chicago.
60 Cartilage Plates from the Scapula of the Calf for Liver and Spleen Suture. M. Stamm, Fremont, Ohio.
61 *Antiseptic Action of Bromin, with Descriptions and Illustrations of Cases. H. E. Stroud.
62 Injection of Air into the Circulatory System of Animals. E. R. Larned, Chicago.

54. **Local Effects of Peritoneal Drainage.**—Yates concludes that drainage of the general peritoneal cavity is physically and physiologically impossible. The relative encapsulation of the drain is immediate. The absolute encapsulation occurs early (less than 6 hours in dogs), and can be retarded, but not prevented. The serous external discharge is an exudate due to the irritation of contiguous peritoneum by the drain. There is a similar inward current from the potential into the general cavity. This external exudate diminishes remarkably with the formation of encapsulating adhesions. These adhesions, under approximately normal conditions, form about any foreign body. Their extent and density depend on the degree and the duration of the irritation of this body. Primarily fibrinous, these adhesions become organized in a few days (three days in dogs). If the irritation persists, they become progressively more mature fibrous tissue. After irritation ceases, their disappearance depends principally on a mechanical factor—the ability of the involved surfaces to pull themselves or to be pulled loose. Drains should be the least irritating, and should be gradually and finally removed as soon as possible. Irrigation through drains is futile to prevent adhesions and dangerous. After a drain is inserted, all intra-abdominal movements should be reduced to a minimum. As soon as the drain is removed, intra-abdominal activity should be stimulated to aid in the disappearance of the remaining adhesions. Peritonitis, if not too severe, possibly aids in the rapidity of the encapsulation of the drain. A drain in the presence of infection is deleterious to peritoneal resistance, and should only be introduced to exclude more malign influences. Postural methods, unless destined to facilitate encapsulation, are both futile and harmful, as far as drainage is concerned. Peritoneal drainage must be local, and unless there is something to be gained by rendering an area extraperitoneal, or by making from such an area a safe path of least resistance leading outside the body, there is, aside from hemostasis, no justification for its use.

55.—See abstract in THE JOURNAL, Jan. 14, 1905, page 152.

58. **Retrodisplacements of Uterus.**—Bovée has histories of 61 patients operated on by the vaginal route, and 68 by the abdominal, or both combined, making a total of 129 cases, with no mortality. This does not include cases in which retrodisplacement was a feature of the conditions present and in which some other surgical procedure followed. By the vaginal route the round ligaments alone were shortened 21 times, the uterosacral alone 16 times, and both in 24 cases. Various other operations were done at the same sittings; curettage was done in every case; trachelorrhaphy was done 21 times; perineorrhaphy, 23 times; colporrhaphy, anterior or posterior, or both, 14 times, and in 10 cases adhesions to the uterus or appendages, or both, were separated, and ovaries and tubes resected or removed; in one, inguinal herniotomy was done, and in another 2 rectovaginal fistulæ were closed; in 12, transplantation or lengthening of the anterior vaginal wall, including the uterovesical ligaments, was done. In the 68 patients operated on by the abdominal route, curettage was done 62 times; trachelorrhaphy, 12; perineorrhaphy, 16; colporrhaphy, 10; removal of one or both appendages, 51; herniotomy, 6; appendicectomy, 29. Pelvic adhesions were separated and diastasis of the recti abdominales relieved 6 times. The round ligaments were shortened by the the Baldy method in 60 patients, and the uterosacral in 52. Bovée concludes that the complications, rather than the uterine displacement, furnish the cause for surgical relief. All operations done, having in view the correction of uterine displacements, should be based on the pathologic and anatomic abnormalities of the uterus and adjacent structures. Any operation that changes one dislocation of the uterus into another is illogical, and hence unsurgical. As a rule, the largest proportion of cases of retroversion of the uterus that require special operations are best treated by proper procedures on the round and uterosacral ligaments.

59. **Hyperalgetic Zones in Gunshot Wounds of the Head.**—Riebel shows that the areas of hyperalgesia observed in gunshot wounds of the head are identical with those observed by Head: (a) By showing segmental arrangement; (b) by not corresponding with peripheral nerves or posterior root areas; (c) tactile and temperature sense are normal; (d) decreasing intensity. Injury of the peripheral sympathetic (intracranial), either at the base of the brain or in the membranes, can not at present be considered causative of the hyperalgesia. Removal of the Gasserian ganglion (intracranial) or evulsion of branches of the ganglion (extracranial) are not associated with hyperalgesia. Injuries of the dura in other than gunshot lesions do not present referred pain. Besides, fractures of the lighter type with recovery (when injury to the sympathetic might be expected) so far have not shown hyperalgetic zones. The frontal lobes were affected in all cases observed by Riebel. Injuries of the frontal lobes not due to gunshot wounds have not been associated with hyperalgesia. The phenomenon has been observed in gunshot wounds only (in traumatic cases).

61. **Antiseptic Action of Bromin.**—Stroud sets forth the value of bromin as an antiseptic of the highest order. His mode of use is as follows: Bromin 2 drams, bromid of potash 2 drams, and one pint of water are mixed and kept in glass-stoppered bottles. The part to be treated is cleaned as well as possible and wrapped in a single thickness of plain gauze, and over this is applied a thick layer of absorbent cotton. Into a glass jar he puts from 6 to 20 gauze sponges of ordinary size, and pours over these as much bromin solution as they will take up, squeezing out the excess. The glass should be very closely covered, as the fumes of the bromin are very irritating. With a pair of forceps he quickly lays these pledgets on the part, and instantly covers with a thick layer of cotton, and also instantly winds the whole part up in oiled silk, and bandages it very loosely. The result is that the fumes of the bromin, but not the solution, are brought in direct and constant contact with the diseased part. This dressing may be renewed in from 6 to 24 hours. In very severe cases of infection Stroud injects a few drops of the solution, but ordinarily reduces it 1 to 10 with water, and uses this solution to syringe pus cavities and gangrenous patches.

Journal Missouri State Medical Association, St. Louis.

December.

63 Case of Unusually Large Abdominal Aneurism. H. Goodloe, St. Louis.
64 Neurasthenia: Its Complications and Treatment. J. Punton, Kansas City, Mo.

Journal of Kansas Medical Society, Lawrence.

December.

65 Esophageal Stricture. D. W. Basham, Wichita.
66 Therapeutic Action of Chemic Salts. B. D. Eastman, Topeka.
67 Hydrocephalus. G. W. Coffey, Concordia.
68 Puerperal Eclampsia. H. L. Clarke, LaCygne.

American Journal of Obstetrics, New York.

January.

69 *Metrorrhagia Myopathica. B. M. Anspach, Philadelphia.
70 *Complications Arising in Ovarian Tumors with Special Reference to Malignancy. C. C. Norris, Philadelphia.
71 Injuries to the Child Inflicted at Birth. J. C. Hoag, Chicago.
72 *Pregnancy Associated with Diabetes. M. A. Tate, Cincinnati.
73 Myomectomy. W. P. Manton, Detroit.
74 Aseptic Midwifery. A. F. Van Horn, Plainfield, N. J.
75 Physiology of Temperature; with Special Reference to that of the Puerperium. F. A. Rhodes, Pittsburg, Pa.

69. **Metrorrhagia Myopathica.**—According to Anspach, metrorrhagia myopathica stands for a distinct class of cases, which have heretofore been variously and incorrectly grouped under apoplexia uteri, endometritis senilis and preclimacteric bleeding. Metrorrhagia myopathica is a symptom immediately dependent on an anatomic or a physiologic lesion of the uterine muscle. No anatomic lesion has as yet been demonstrated, but it will probably be found in the elastic tissue constituents of the vessel walls and the subserous and supravascular layers. The physiologic lesion is most likely an insufficient contractile power of the uterus. It is possible that the condition is purely functional and that there is no anatomic change which can be recognized. In cases of metrorrhagia myopathica the uterus is enlarged and softened; the os is patulous. Metrorrhagia myopathica does not occur in nulliparous women and, therefore, it must have some connection with the child-bearing process. Anspach claims that the diagnosis of metrorrhagia myopathica is only justified when all other possible causes for uterine hemorrhage have been excluded. This can not be too strongly urged, especially in reference to carcinoma. The terms apoplexia uteri, senile endometritis, and preclimacteric bleeding as applied to these cases are incorrect and unscientific. While curettement, atmocausis, etc., has little effect in cases of metrorrhagia myopathica, palliative measures should always be tried before adopting hysterectomy. Obliteration of the endometrial cavity by means of destructive atmocausis is the alternative of hysterectomy in these cases. Anspach says that it is harder to perform correctly and more dangerous than hysterectomy, which is the operation of choice.

70. **Malignancy of Ovarian Tumors.**—Norris discusses the complications occurring in 63 cases of ovarian tumors. Simple retention cysts, even when of moderate size, are not included in this list. As regards malignancy, he concludes as follows: One in from four to six cases of tumor of the ovaries is malignant, and that this proportion is sufficient to warrant the treatment of all cases of ovarian tumors as malignant until proved otherwise. The operative mortality in cases of malignant disease of the ovaries should not be above 10 or 12 per cent. The number of cures at the end of five years will be relatively small. Carcinoma is by far the most frequent and most dangerous of the malignant diseases of the ovaries, and the recurrence will be largely due to this condition. Every patient with ovarian tumor should be operated on at once, unless there is some strong contraindication. In the so-called "border-line cases" the patients should be operated on because the case may present all the clinical evidences of malignancy, and on operation may prove benign, or the gross specimen may even, together with the clinical symptoms, appear malignant, and on histologic examination prove benign; this is especially true of the adenopapilloma, which frequently, grossly and clinically, closely resemble adenocarcinomatous papilloma. An exploratory laparotomy and the removal of ascitic fluid will make many patients more comfortable, and should certainly be performed when there is any doubt whatever as to the absolute diagnosis of malignancy. All ovarian tumors should be subjected to a rigid microscopic examination, and in cases in which there is any doubt as to the character of the tumor a large number of sections should be taken; and this routine probably, in part, accounts for the high percentage of malignancy occurring in the series of ovarian tumors reported. Norris claims that parovarian cysts are far less dangerous than true ovarian cysts. In this series of 19 consecutive cases of parovarian cysts there were no complications and no malignant degeneration. Torsion, next to malignancy, he states, is the most frequent and dangerous complication occurring in ovarian tumors, and it occurs in a mild form more often than is generally supposed. In the 63 cases which have been reported, 33.33 per cent. of the patients would surely have died within a short time without operation. The operative mortality for all ovarian cysts should be under 8 or 10 per cent. In the above series it was 3.17 per cent. The operative mortality for benign cyst will be much less. In Norris' series it was less than 2 per cent. The operative mortality for malignant tumors of the ovary should certainly be under 10 or 15 per cent., and early diagnosis and immediate operation on all new growths of the ovary will greatly reduce this proportion.

72.—See abstract in THE JOURNAL, Sept. 30, 1905, page 1021.

Southern Medicine and Surgery, Chattanooga, Tenn.

December.

76 Use and Abuse of the Rest Treatment. F. P. Norbury, Jacksonville, Ill.
77 Intestinal (External) and Internal (or Cellular) Antisepsis. W. C. Abbott, Chicago.
78 Practical Points in X-Ray Therapy. A. L. Gray, Richmond, Va.
79 Case of Tubercular Nephritis—with Nephrectomy and Subsequent Incontinence. J. A. Hofheimer, New York.

Denver Medical Times.

December.

80 Treatment of Pneumonia. J. T. Melvin, Saguache, Colo.
81 Id. E. P. Hershey, Denver.
82 Id. S. G. Kahn, Leadville, Colo.
83 Id. G. N. Macomber, Denver.
84 Id. C. A. Ferris, Georgetown.
85 Id. A. Mann, Denver.
86 Id. S. Simon, Denver.
87 Two Cases of Rocky Mountain Spotted Fever. K. H. Kellogg, Stevensville, Mont.

Cleveland Medical Journal.

December.

88 Intestinal Obstruction. G. A. Armstrong, Montreal, Can.
89 Right to Practice Medicine. A. Clum, Cleveland.
90 Sphere of Sanatoriums and Dispensaries in the Anti-Tuberculosis Struggle. M. M. Courtois-Suffit, and Ch. Laubry, Paris.

Journal of New Mexico Medical Association, Albuquerque.

December.

91 Causes and Treatment of Appendicitis. C. F. Beeson, Roswell.
92 One Hundred Cataract Operations Performed in New Mexico and Southern Colorado. L. Hernandez.
93 Nephritis. S. S. Swope, Deming.

The Postgraduate, New York.

December.

94 Panhysterokolpectomy. R. Waldo, New York.
95 Device for Collecting Infants Urine for Examination. H. D. Chapin.
96 New Neeble Holder. G. M. Edebohls, New York.
97 Lobar Pneumonia in a Child Mistakenly Supposed to be Appendicitis. J. S. Emans, New York.
98 Cesarean Section for Severe Puerperal Eclampsia on a Child Twelve Years and Eight Months Old, with Contracted Pelvis. H. J. Boldt, New York.
99 Differential Diagnosis Between Sporadic Cretinism, Rachitis and Achondroplasia. H. B. Sheffield, New York.
100 Importance of Examination Through the Rectum in Children. G. R. Pisek, New York.
101 Roentgen Ray in Primary Carcinoma of the Breast. A. Judd, New York.

Columbus Medical Journal.

December.

102 Treatment of Valvular Diseases of the Heart. G. M. Waters, Columbus.
103 Complications of Acute Appendicitis. R. E. Skeel, Cleveland.
104 Retrospective Medicine and Surgery. H. B. Gibbon, Tiffin, Ohio.

Journal of Nervous and Mental Diseases, New York.

December.

105 Diet in Epilepsy. A. J. Rosanoff, New York.
106 Epidemic Multiple Neuritis of Obscure Origin. M. A. Bliss, St. Louis.
107 Study of Dementia Præcox. D. O. Hecht, Chicago. (Continued.)

Colorado Medicine, Denver.

December.

108 Radical Mastoid Operation for the Cure of Chronic Otorrhea. J. M. Foster, Denver.
109 Ear Sequelæ of Adenoids. R. G. Davenport, Trinidad.
110 Case of Bronchiectasis. O. M. Gilbert, Boulder.
111 Colorado Medical Law in Operation. W. F. Church, Greeley.

Medical Sentinel, Portland, Ore.

December.

112 Surgical Treatment of Nasal Obstructions. A. Blitz, Boise, Idaho.

113 Gastric Ulcer; Gastric Cancer; Obstruction of Pylorus. E. F. Tucker, Portland, Ore.
114 Treatment of Pneumonia—Based on 203 Consecutive Cases. E. F. Conyncham, Philipsburg, Mont.
115 Reciprocity. J. W. Gue, Caldwell, Idaho.

California Medical and Surgical Reporter, Los Angeles.

December.

116 Etiology of Chronic Interstitial Nephritis. J. L. Hagadorn, Los Angeles.
117 Pathology and Urinalysis of Chronic Interstitial Nephritis. R. Smith, Los Angeles.
118 Symptomatology and Diagnosis of Chronic Interstitial Nephritis. J. H. Utley, Los Angeles.
119 Ingestion of Fluids in Chronic Interstitial Nephritis. J. A. Colliver, Los Angeles.
120 Nervous Manifestations of Chronic Interstitial Nephritis. H. G. Brainerd, Los Angeles.
121 Treatment of Chronic Interstitial Nephritis. E. Sweet, Los Angeles.

Journal of Mississippi State Medical Association, Vicksburg.

December.

122 Value of Organization. T. L. Wilburn, Kilmichael.
123 Abortion. J. E. Stennis, McComb.
124 Acute Suppurative Arthritis in Infants. F. C. Spalding, Gunnison.
125 Adenoids. E. T. Wilkinson, Boyle.

Albany Medical Annals.

December.

126 Sequence of the Pathologic Changes in Appendicitis. E. MacD. Stanton, Albany.
127 Primary Carcinoma of the Vermiform Appendix. L. K. Baldauf, Albany.
128 Retention Cyst and Diverticulum of the Vermiform Appendix. E. Corning, Albany.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

January 6.

1 Medical Aspects of Carcinoma of the Breast. W. Osler.
2 Three Cases of Arterial Disease. T. C. Allbutt.
3 Lecture on Action and Uses of Digitalis in Cardiac Failure. J. M. Bruce.
4 Lepra Ophthalmica. K. Grossmann.
5 *Investigation of the Mechanism of Condylotomy for the Cure of Genu Valgum (Reeves' Operation). W. C. Stevenson.
6 Influence of Acid on Guinea-Worm Larvæ Encysted in Cyclops. R. T. Leiper.

5. **Mechanism of Condylotomy.**—By means of taking a series of skiagrams in a case of knock-knee requiring operation (Reeves' operation) on both knees, Stevenson found that the alterations brought about for the operation are as follows: 1. The inferior epiphysis of the femur retains its relation to the resected portion of the diaphysis, and the two together may be described as the lower fragment in a complete fracture. 2. The lower fragment is dislocated inward, causing the diaphysis to project outward beyond the external condyle. 3. The lower fragment is also rotated upward and inward round an antero-posterior axis passing through the epiphyseal line in the neighborhood of the intercondylic notch. This displacement is more clearly understood if one considers the direction of the forces applied in straightening the limb. The above rotation or tilting up of the lower fragment has the following consequences: (a) The separation of the epiphysis from the diaphysis externally; (b) the impaction of the compact tissue of the lower end of the upper fragment into the cancellous tissue of the resected portion of the diaphysis in the lower fragment (c) the assumption of a more vertical position of the internal portion of the epiphysial line. 4. The relations of the tibia to the condyles of the femur are not materially altered. 5. The relation of the epiphyseal line. 4. The relations of the tibia to the latter is not fractured through, although the osteotome penetrates the inferior epiphysis of the femur near the intercondylic notch.

The Lancet, London.

January 6.

7 *Therapeutic Value of the Treatment of Consumption on Sanatorium Lines. R. D. Powell.
8 *Sanatorium Treatment of Pulmonary Tuberculosis. W. H. Broadbent.
9 *Objects and Limitations of Sanatoriums for Consumptives. C. T. Williams.
10 *Therapeutic Value of Sanatorium Treatment in Pulmonary Tuberculosis. J. K. Fowler.
11 *Sanatorium Treatment of Pulmonary Tuberculosis. F. J. Wethered.
12 *Economic Value of Sanatoriums. A. Latham.
13 Sanatoriums for Consumptives. F. R. Walters.
14 A Medley of Surgery. E. E. Goldmann.
15 Case of Ochronosis. F. M. Pope.
16 *Case of Operation on the Vestibule for the Relief of Vertigo. R. Lake.

7-12. **Sanatorium Treatment of Consumption.**—Powell has no doubt of the therapeutic value of the treatment of consumption on sanatorium lines which need not necessarily be carried out in sanatoriums. He says that the employment of sanatoriums in the treatment of phthisis is essential in the great majority of cases for the reason that few people, even among the well-to-do, can command those conditions of locality, facilities, space, help and medical supervision which are the important elements of the treatment. He is convinced that there is an unfortunate and exaggerated belief in the person to person infectiousness of phthisis which has grown under the advocacy of sanitarian and antituberculosis societies.

Broadbent believes in sanatorium treatment. He says that sanatoriums serve two distinct purposes—the arrest of the disease in early cases and the prevention of its spread by advanced cases.

According to Williams, sanatoriums are intended for cases of consumption of recent origin, with limited lesions and with little or no fever. They are not places where severe cases ought to be segregated. Hospitals should be provided for such cases, as is done in Sweden and Denmark. For the treatment of consumption three institutions are required: 1. A consumption hospital to deal with acute and advanced cases; 2, a sanatorium for patients with incipient and limited lesions, and who are for the most part able to take exercise, and, 3, a settlement or colony for patients with arrested consumption where they can be employed on work adapted to their strength and capabilities.

Fowler says that experience has demonstrated the therapeutic value of sanatorium treatment, and that the results obtained may be equally successful with well-to-do patients and with the working classes.

Wethered also is convinced of the therapeutic value of sanatorium treatment, provided that certain conditions have been fulfilled. In the absence of these the results are not so good. The chief of these conditions are three in number: 1. If the disease is in the incipient stage and not acute when the patient first comes under treatment; 2, if the patient remains under active treatment for a sufficiently long period, which, in most cases, should be at least six months; and, 3, if a healthy outdoor life can be followed subsequently. Although sanatorium treatment of pulmonary tuberculosis is the best that has been introduced, it is by no means a specific, and only a certain proportion of the patients show partial or complete recovery. Further, the more independent the patient as regards the necessity of earning a living the better is the result likely to be.

Latham thinks that sanatoriums are essential to the treatment of tuberculosis and that, if properly used as an important part of a co-ordinated system, they are invaluable to a campaign directed toward the eradication of tuberculosis.

16. **Operation for Vertigo.**—Lake's patient, a woman, had been deaf in both ears for some time. Both ears had been operated on several times for the cure of suppurative otitis with an eventually successful result on the right side. For four years she suffered very severely with bilateral oral vertigo. The patient was operated on in the following manner: After exposing the bony semicircular canal its upper surface was cut away with the electric burr until the membranous canal was opened. This canal was then followed up anteriorly and posteriorly to the entrance into the vestibule. Then, by means of a small chisel, these two openings were connected by cutting away the intervening bone. Having once obtained a wide entry into the vestibule the whole of its upper surface, or the vestibular roof, was rapidly removed in such a way as to expose the entrance to the posterior ampullary dilatation. All the exposed parts of the vestibule and ampullæ were carefully curetted with a fine curette. Thorough drainage was afforded to the small bone-locked cavity by removing the footplate of the stapes. This completed the operation, the facial nerve, sheathed in bone, lying between the openings into the vestibule. At the end of three weeks the patient was able to

walk fairly straight, to go up and down stairs, and to perform any actions she chose without any inconvenience.

Annales des Mal. des Org. Gén.-Urin., Paris.

Last indexed page XLV, page 1990.

17 (XXIII, No. 20.) Evolution de l'hypertrophie de la prostate. B. Motz and Perearnau.
18 (No. 21.) *La synorchidie artificielle. Mauclaire.
19 Thérapeutique des hématuries chez les prostatiques. M. Deschamps.
20 My Second Case of Horseshoe Kidney.—Rein en fer de cheval. Bruncher.
21 (No. 22.) Contribution à la pathologie de la masturbation. C. Féré.
22 Du rétrecissement blennorrhagique de la portion membraneuse de l'urèthre. P. Heresco and D. Danielopolu.
23 Appareil pour lavages urétro-vésicaux thermo-laveur. Estrabaut.
24 New Style of Permanent Sound.—Sonde à demeure de Malécot modifiée. P. Lebreton.
25 Hématuries des néphrites. Albarran.

18. **Grafting or Uniting the Testicles.**—The indications for this operation are multiple, according to Mauclaire. In case of ectopic testicle, synorchidism fastens the testicle in its place and insures better conditions for nourishment. It renders the same service in varicocele and banishes the pain. In case of resection of the vas deferens, intertesticular anastomosis or synorchidism re-establishes an outlet for the sperma by way of the intact organ. The operation is contraindicated after epididymectomy for a progressing bacillary affection, but may be useful after the lesions have long healed. In case of obstruction to the outflow of sperma from a gonorrheal nodule in the tail of the epididymis, synorchidism might prove useful to supplement the implantation of the vas deferens in the head of the epididymis or in the testicle. This aids in re-establishing an outlet for the sperma, and proved successful in a personal case, the details of which are related. Mauclaire has also been successful with the synorchidism in a case of multiple and recurring cysts in the epididymis. All these various methods of anastomosis and grafting may prove useful in the delicate and complex treatment of sterility in males. He has had considerable experimental and clinical experience with the various operations. The preferred method is to freshen the inner surfaces of the testicles with two small crescent-shaped raw surfaces on each and to suture the lozenge-shaped wounds in each testicle to the corresponding wound in its mate. The tunica vaginalis is then sutured around them in such a way as to have but a single tunic for the two. This is his typical operation. The description is illustrated. The ultimate results in his cases have been eminently satisfactory.

Bulletin de l'Acad. de Médecine, Paris.

26 (Year XLIX, No. 42.) *Transmission des maladies contagieuses dans les écoles municipales par le passage des livres des élèves d'une année à l'autre. A. Josias.
27 (No. 43, December 26.) Névroses de l'enfance et problèmes d'éducation. M. de Fleury.
28 *Sur la régénération de l'air confiné vicié par la respiration. N. Gréhant.
29 *Action des iodiques sur la circulation. Pouchet.
30 *Hygiène de l'enfance (of childhood).

26. **Disinfection of Books.**—Josias discusses the danger of transmission of infectious diseases by the school books used by successive classes. He also reviews the various methods of disinfection that have been proposed, concluding that all technics need improving. For a small number of books he recommends the Miquel technic. The disinfectant used is a combination of two parts of formic aldehyd to one part of calcium chlorid. A strip of cloth is wound on a roller and placed in a vessel containing the disinfectant. The cloth is then wound from the first on a second roller, every part of the cloth being thoroughly impregnated with the fluid. The cloth is then stretched horizontally in the box in which the disinfection is to be done, the cloth having been fitted to the size of the box beforehand. A box of one-half or three-fourths of a cubic meter is the usual size. In twenty-four hours all the articles in the air-tight box are thoroughly sterilized by the fumes of the disinfectant evaporating from the cloth. This technic will readily sterilize books placed on a grating above, with the pages flaring, while the books are not injured in the least. The fumes must have access to every leaf.

28. **Potash for Regeneration of Vitiated Air.**—Gréhant states that experiments with a dog breathing into a bag showed that the air exhaled was deprived of the carbon dioxid by passing the exhaled air through a tank containing 450 gm. of pure, dry potash. The bag into which the animal breathed contained about 300 liters of air. At the end of twelve hours not a trace of carbon dioxid could be detected in the air. The potash was arranged in small pieces on wire netting trays to insure as large a surface for absorption as possible. The tank grew hot during the experiences, but the potash finally became saturated and ceased to absorb the gas further. When the potash in the tank was dissolved with boiling water later, about 71 liters of carbonic acid were derived from the alkaline fluid. Gréhant used in his experiments the Guglielminetti-Dräger compressed oxygen and potash apparatus, devised for clinical anesthesias.

29. **Action of Iodids on the Circulation.**—Pouchet's historical sketch of this subject is supplemented by the conclusions of much personal experimentation and clinical research. He remarks in regard to iodized albuminoids, such as iodized peptone, that they spoil readily and that their use should be under stricter surveillance than at present. Their action on the vascular system declines rapidly in intensity as the preparations grow older, but not their poisonous properties. Their effect on the nutrition and on the nervous system has been injurious in many instances, but the results have generally been ascribed to the affection for which they were being taken. Iodin and the iodids, on one hand, and the extract of the fresh thyroid gland and the iodized albuminoids, on the other hand, have an opposite action on the heart and the extracardiac nervous apparatus. The former induce hypertension, the latter hypotension, in the medicinal dosage. In toxic doses both induce hypotension by their depressing action on the myocardium and by paralysis of the nervous system. The iodids can not be considered heart drugs, in the proper sense of the word, their action on the circulation, in therapeutic dosage, being secondary and subordinate to their action on the lymphatic system and on the blood, as Pouchet relates in detail.

30. **Hygiene of Childhood.**—More than 154 pages are devoted to the various communications and reports presented to the Académie during the year bearing on the physical protection and hygiene of infants and children. They form an imposing list and testify to immense activity in this line in France on the part of medical men, municipal and state authorities, charitable organizations and private and corporate philanthropy.

Presse Médicale, Paris.

31 (No. 101). La graphologie en médecine. R. Romme.
32 Les troubles de l'élimination chlorurée urinaire facteurs d'obesité. H. Labbé and L. Furet.
33 *L'index endémique du paludisme. H. Gros.
34 *Traitement des névralgies rebelles par les injections profondes d'alcool. Ostwalt.
35 (No. 102.) *Chewing Gum in Treatment of Hyperchlorhydria.—Les masticatoires comme traitement de l'hyperchlorhydrie stomacale. L. Meunier.
36 Technic of Examining the Apex.—Examen du sommet du poumon. M. Letulle.

33. **Endemic Index of Malaria.**—In the experience of Gros in Algeria, no young children showed any evidence of malaria, while it was frequent among older children. This is because the natives live among the hills, and the young children are not exposed to malaria. When the children are old enough to be sent to tend the flocks in the pasture lands along the rivers they become infected. Examination of the younger children in this region—according to Koch's formula for the endemic index—would indicate that there was no malaria in the country.

34. **Deep Injections of Alcohol in Neuralgia.**—Ostwalt states that he has made 250 deep injections of alcohol in cases of tic douloureux or facial neuralgia, and never has had the slightest mishap or unpleasant by-effect. The pain was arrested at once. The effect is like a transient Gasserectomy, as for the time being the functions of the Gasserian ganglion are suspended. In at least 90 per cent. of the cases the neuralgia was cured by the procedure. In about a third of the patients recurrence was observed after four or five months, but one or two more injections definitely banished the pain. He injects 1 or 1.5 c.c. of 80 per cent. alcohol, to which .01 gm. of cocain or stovain has been added, making the injection along the

trunk of each of the branches affected at the point where they emerge from the bone. He prefers a bayonet-shaped needle and has found these deep injections of alcohol effectual in case of neuralgia elsewhere in the body, in sciatica, etc. He has also cured cases of rebellious facial hemispasm by injecting, a drop at a time, 70 per cent. alcohol along the trunk of the facial nerve, according to Schlösser's technic.

35. **Chewing Gum in Treatment of Hyperchlorhydria.**—Meunier has been traveling in this country and he informs his countrymen that one in every four American women is chewing gum constantly, and one out of every two men is chewing tobacco or gum. This constant chewing, he was told, is to aid digestion, and he has noticed that the persons chewing presented evidences of hyperchlorhydria. This affection is common among Americans, he adds, as they eat quantities of meat, drink a great deal, and are so devoted to business that they have little time for mastication of their food. On his return home Meunier began to study whether this chewing gum custom was a mere fad or whether it was really beneficial. In hyperchlorhydria the digestion of starch in the stomach is checked by the presence of an excess of hydrochloric acid, and, on the other hand, the presence of the undigested starchy matters induces excessive secretion of the hydrochloric acid. In both of these phases the indications are to help the digestion of the ingested starch, and this is what chewing gum accomplishes. If a person chews gum for an hour and ejects the accumulated saliva into a graduated recipient, from 100 to 150 c.c. of saliva will be found in the vessel. In chewing 100 gm. of bread only from 15 to 20 c.c. of saliva is secreted and swallowed with the bread. Experiments with the Ewald test breakfast confirmed his theoretical reasoning and showed that chewing gum or some similar substance after a meal has a marked influence on the digestion of starch, promoting it by the large supplementary amounts of saliva swallowed, thus eliminating the second phase of hyperchlorhydria. He now orders chewing gum for all his patients of this class.

Semaine Médicale, Paris.

37 (XXV, No. 52.) *Le traitement opératoire des sinusites frontales chroniques. J. Guisez (Paris).

37. **Chronic Frontal Sinusitis.**—The principle which Guisez has adopted in case of chronic frontal sinusitis is that the ethmoidal sinus is always involved in the process. This necessitates thorough evacuation of its contents. He accomplishes this by turning back a flap, made by an incision in the upper third of the eyebrow, extended .5 cm. below the inner angle of the orbit. The flap thus made can be replaced without leaving a trace, while it allows ample access to the sinus. The frontal sinus is trephined. The results have been very satisfactory in 18 cases in which he has operated by this technic. The only drawback is that the nasal fossæ become enlarged by it. He overcomes this by injection of paraffin afterward. The skin wound heals in a week or two, but the intranasal healing is a slower process, requiring treatment for a time. Cure is not complete until all traces of exudation, scabs and crusts have vanished.

Archiv f. klinische Chirurgie, Berlin.

Last indexed XLV, page 1283.

38 (LXXVII, No. 3.) Best Time to Operate in Appendicitis.—Ueber den günstigsten Zeitpunkt des op. Einschreitens bei der Wurmfortsatzentzündung. W. Körte.
39 Gefässverletzungen und traumatische Aneurismen im russisch-japanischen Kriege. L. Bornhaupt.
40 Einige weitere anatomische Präparate von Fracturen des Os naviculare der Handwurzel nebst Bemerkungen und Experimenten über die Entstehung dieser Fracturen. R. Wolff.
41 Ueber eine eigenthümliche Form chronischer Dickdarm-Stenose an der Flexura coli sinistra. E. Payr.
42 *Ueber maligne Gesichtsfurunkel und deren Behandlung (furuncles on face). F. J. Rosenbach.
43 Amount of Disability After Fracture of Patella.—Ueber die Grösse der Unfallfolgen bei der blutigen und unblutigen Behandlung der einfachen subcutanen Querbrüche der Kniescheibe. C. Thiem.
44 Id.—Resultate blutiger und unblutiger Behandlung von Patellafracturen. F. Oehlecker.
45 Ueber Pharynx-Plastik. Helferich.
46 *Ueber Peru-Balsam als Mittel zur Wund-Behandlung. H. Schlöffer.
47 Cause of Necrosis of Cancer Tissue.—Ursache der Nekrose im Krebsgewebe. C. Ritter.
48 Fibrolipom des Magens, complicirt durch Tetanie (fibrolipoma of stomach). H. Fischer.
49 *Operative Beeinflussung des Epileptiker-Gehirns (brain). P. L. Friedrich.
50 Cholesteatom der hinteren Schädelgrube (in posterior cranial fossa). M. Borchardt.

42. **Treatment of Malignant Furuncle on the Face.**—Rosenbach relates the particulars of 3 cases in which a furuncle on the face had developed into a malignant phlegmon with impending pyemia and sepsis. The *Staphylococcus aureus* was found in pure cultures, but it must have been exceptionally virulent. He is positive that this enhanced virulence is the result of the anatomic conditions of the parts. The muscles of the face are continually forcing and pumping material from the furuncle into the adjoining tissues, causing the spreading of the inflammation and suppuration in lines radiating from the original focus. He was able to trace the development of these cords of suppuration radiating from the furuncle, and interfered by making an incision along each of these radiating cords, as well as in the furuncle itself. The result was the gradual healing of the lesion. One of the 13 illustrations shows a young man with eight of these incisions. The furuncle in all Rosenbach's cases was on the upper lip. One of the incisions encircled the base of the nose, three were on the chin and the rest were on the cheeks near the focus. The incisions allowed the evacuation of pus and necrotic tissue and cocci, or at least of toxic fluids abounding in cocci, and also permitted local treatment with iodoform. The incisions and local treatment seemed to transform the negative into positive chemotaxis. One of his patients presented metastases in the ear, ankle and parotid gland.

46. **Peruvian Balsam in Treatment of Wounds.**—Schlöffer has treated more than 100 cases of wounds with Peruvian balsam and his experience has convinced him that the balsam has certain properties which surpass those of any other substance at our disposal for the treatment of wounds, especially in crushed and soiled tissues. Severe inflammation never develops in any wound treated with the balsam in the first twenty-four hours. The balsam is poured into the wound and every crevice filled. It attracts the leucocytes to the spot and has a kind of mummifying effect on the dead tissues, while it mechanically checks the development of micro-organisms.

49. **Operative Treatment of Epileptics.**—Friedrich tabulates the particulars of 11 cases of epilepsy of supposed traumatic origin in which an operation was undertaken. Among the lessons learned from this experience is that operative intervention may prove useful when the symptoms of the aura and the objective findings suggest traumatic conditions, even although the beginning of the seizure may not correspond with the point of the supposed trauma according to the accepted topography of the cortex. During the interval also careful search should be made for symptoms suggesting organic trouble, especially headache at a certain point recurring after physical or mental exertion or after emotions or certain pleasures or in sleep. The onset of the seizure should be studied, whether the same groups of muscles are always involved and whether the subsidence of the seizure obeys certain territorial limitations. Some of the 11 patients were remarkably improved and one completely cured, while a number were only transiently benefited.

Jahrbuch für Kinderheilkunde, Berlin.

Last indexed XLV, page 1370.

51 (LXII, No. 3.) Die Veränderungen des "neutrophilen Blutbildes" bei Infektionskrankheiten (changes in blood in infections). H. Flesch and A. Schlossberger.
52 *Die Behandlung der tuberkulösen Bauchfellentzündung im Kindesalter, mit besonderer Berücksichtigung der Laparotomie (peritonitis in children). G. Faludi.
53 Zur Symptomatologie der Rückenmarkstuberkulose (of spinal cord). F. v. Reusz.
54 Ueber eine eigenartige Degeneration der Marksubstanz bei Tuberkulose des Rückenmarkes (spinal cord). Id.
55 *Ueber Indikationen zur operativen Behandlung der Blasensteine der Kinder (bladder stones in children). A. M. Winternitz.
56 *Ueber Ovarial-Geschwülste bei Kindern (tumors in children). Id.
57 *Ueber Teratome der Schilddrüse und ihre operative Behandlung (in thyroid gland). H. Flesch and A. M. Winternitz.
58 *Ueber die Behandlung der skarlatinösen Urämie mit Venaesektion. G. Singer.
59 Meine neueren Erfahrungen über das Mosersche polyvalente Scharlach-Serum (in scarlet fever). J. v. Bokay.
60 Zur Behandlung der Leukämie mit Roentgen-Strahlen. H. Flesch.
61 Die Skrofulose. K. Preisich.

52. **Tuberculous Peritonitis in Children.**—Faludi sifts the literature on this subject and reviews the material at the Stephanie Hospital, his conclusions being all in favor of laparotomy at the earliest moment in cases of ulcero-caseous or fibro-adhesive tuberculous peritonitis in children. The results are liable to be excellent in such cases. In the form with effusion, hygienic-dietetic treatment should first be given a thorough trial. If it fails or is not convenient, then laparotomy should be done without delay. Punctures should not be attempted. A serious tuberculous affection in another organ is a contraindication to laparotomy, but not so fever or debility. Circumscribed tuberculous inflammations in children always demand surgical intervention. The after-treatment in all these cases is of vital importance, the dietetic and hygienic measures being supplemented by the proper anti-tuberculosis medication.

55. **Bladder Stones in Children.**—The tabulated results of Winternitz's operations for bladder stones in children certainly speak in favor of his technic. He crushes the stones and removes them by suction through a tube when the concrements are movable and crushable, the bladder and upper urinary passages free from infection, and the urethra at least as wide as a No. 16 Charnière sound. When the urethra is smaller than this, or when obstinate catarrh of the bladder or posterior urethra resists treatment, then he resorts to the high incision. He examines with the cystoscope to see if any fragments have been left behind after crushing the stones, and on this account does not attempt to crush them when the children are too small to allow the introduction of the cystoscope. He tabulates the details in 28 cases.

56. **Ovarian Tumors in Children.**—Winternitz reports 4 cases cured by operation. The tumor was an embryoma in all but one. Palpation of the tumor usually differentiated the ovarian growth, but appendicitis had been diagnosed in one instance. In this case a dermoid cyst of the ovary, after torsion of the pedicle had suppurated and perforated through the abdominal wall.

57. **Teratoma of Thyroid Gland.**—Two cases are reported, both cured by operation. They were in infants of 2 and 8 months, respectively. If such a tumor causes no disturbance it might be advisable, he states, to wait until the child is from 1 to 3 years old, but in case symptoms develop earlier prompt interference is required. The total excision of the tumor, as large as a fist, in the left lobe of the thyroid, was borne well by the 8 months' infant. Careful preliminary ligation of the vessels is indispensable. Cartilage tissue was prominent in each of the tumors removed. The tumor in the younger infant originated in the isthmus and was readily removed, the infant being dismissed in good health a week later.

58. **Venesection in Scarlatinal Uremia.**—Singer advocates venesection as the most rational and beneficial measure in scarlatinal uremia. It is especially indicated in cases showing symptoms indicating irritation of the brain. When there is a tendency to coma and depression, venesection can do no harm, but not much can be hoped from it at this stage. It is applicable to both robust and weakly children. If the pulse is filiform, the internal organs are generally irreparably injured at this stage and the operation is generally useless. Venesection should be done as early as possible, during the first uremic attack. The amount of blood to be withdrawn must be decided by the age, strength and severity of the attack. Venesection can be repeated at need after from twenty-four to forty-eight hours. Baginsky thinks that from one-fifteenth to one-twentieth of the total amount of blood can be let out without danger. In Singer's 17 cases of acute scarlatinal uremia treated by venesection, all the patients recovered but 2, that is, the mortality was 12 per cent. In the 9 cases treated without venesection the mortality was 56 per cent.

Wiener klinische Rundschau, Vienna.

Last indexed XLV, page 881.

62 (XIX, No. 24.) Krankhafte Gangarten bei Ischias (morbid gait in sciatica). E. Weisz.
63 Ueber die Wirkung der Hämolysine. K. Landsteiner and M. v. Eisler.
64 (No. 25.) •Zur Diagnostik der Lungen Krankheiten. Dünges.
65 •Die orthopädische Behandlung von Erkrankungen des Nervensystems. M. Haudek. (Concluded.)
66 (Nos. 26-29.) •Test for "Occult" Gastrointestinal Hemorrhage.—Der Wert der Barbados-Aloin-Blutprobe bei Magen und Darmblutungen. A. v. Torday.
67 Beitrag zur Diagnostik der Tuberkulose und Lues des Kehlkopfes (of larynx). R. Landesberg.
68 Beiträge zur Onychopathologie. G. Nobl.
69 Der psychophysische Parallelismus. K. C. Schneider.
70 Elastic Fibers in Sclera in Myopic Eyes.—Die elastischen Fasern in der Sklera myopischer Augen. A. Elschnig.

64. **Diagnosis of Lung Affections.**—Dünges tabulates the findings in 46 patients with special regard to comparison of the elasticity of the soft parts on both sides of the chest in pulmonary affections. The course of the cases confirmed the finding that the tonicity on the affected side is materially diminished in case of unilateral apical affections. In the bilateral affections, the tonicity is less on the side most involved. Careful symmetrical palpation of both sides of the chest will reveal a difference in the tonicity of the soft parts before any other evidences of a pulmonary affection are evident. It is well to mark a number of points on the skin to insure symmetrical examination. The physician stands behind the patient and palpates especially in the clavicular fossa with his fingers, his thumbs in the infraspinous fossa, pressing on the muscles and comparing the resistance on the two sides. Dünges is confident that systematic palpation to compare the elasticity of the soft parts on each side will reveal many an unsuspected incipient tuberculous affection in the apices.

65. **Orthopedic Treatment of Nervous Affections.**—Haudek reviews the various ways in which orthopedics and physical measures are now summoned to the aid of nervous affections. They have contributed to improve the prognosis to a remarkable extent in many cases of paralysis, etc.

66. **Aloin Test for Invisible Blood in Feces or Stomach Contents.**—Extensive tests by von Torday have confirmed the great value of the constant finding of blood in the feces or stomach contents as a sign of cancer. The guaiac test is too delicate for general use, but the aloin modification can be recommended in high terms, he says, corroborating the similar assertions by others. For the modified aloin test, about 5 c.c. of the feces or stomach content to be examined, after removal of the fat, is rubbed up with ether, with a little alcohol if necessary, which is afterward filtered out. About 5 c.c. acetic acid are then rubbed in and 10 g. of ether are mixed with the material and the whole filtered. Then 1.5 c.c. of ozonized turpentine is poured over the extract resulting from the filtering and also .5 c.c. of an alcohol solution of aloin. If blood coloring matter be present, a red ring forms at the junction of the turpentine or the whole of the fluid assumes a diffuse red tint. The turpentine may float on the surface or sink to the bottom, the characteristic red ring forms along its edge. Food containing much chlorophyl does not interfere with the test, but large amounts of urobilin in the feces must be extracted with alcohol beforehand. It is important, also before the test, for the patient to refrain from eating meat with red juices and medicines containing iron. This test will reveal "occult" hemorrhages without fail, and when the test is constantly positive some cancerous lesion should be suspected.

Wiener klinische Wochenschrift, Vienna.

Last indexed XLV, page 1913.

71 (XVIII, No. 34.) •Lymphatisches System und Tuberkulose-Infection. J. Bartel.
72 •Ueber Cholecystitis typhosa. R. Dörr.
73 •Camphor and Atropin Poisoning.—Vergiftungsfälle. W. Löbl.
74 •Standard for Normal Feces.—Aufstellung eines Normalkotes. v. Oefele (Neuenahr.)
75 (No. 35.) Welche Rolle spielt das Lezithin bei der Sublimat-Hämolyse? H. Sachs.
76 Zur Frage der Bildungstätte der Antikörper (place of formation). E. Brezina.
77 Zur Symptomatologie der Pellagra. P. Delaco.
78 (No. 36.) Ueber Giftstoffe in den Kulturen des Gasphlegmone-Bazillus (toxic substances in cultures). F. Passini.
79 •Versuche mit Cholin (in radium treatment). R. St. Hoffmann.
80 Ueber den Cytoryktes Luis (Siegel). L. Merk.
81 Gefahren der Punktion der Echinokokkus-Cysten (dangers of puncture). A. Zirkelbach.

71. **Lymphatic System and Tuberculosis Infection.**—Bartel noted in some experiments on rabbits fed with virulent tubercle bacilli that a latency of 104 days was evident in some in-

stances. This fact, in connection with the finding of virulent tubercle bacilli in glands which showed no trace of the characteristic tuberculous process, has convinced him that a tuberculous process passes through a phase of small-celled hyperplasia the same as a pyogenic infectious process. There can be no doubt, he thinks, that the lymphocyte is capable of exerting an inhibiting influence on the tubercle bacillus in respect to its action on the living organism.

72. **Typhoid Inflammation of Gall Bladder.**—The pus from an empyema of the gall bladder in a woman who had long presented evidences of cholelithiasis revealed typhoid bacilli in large numbers. There was a history of a brief febrile affection a year or so previously which must have been typhoid. Dörr injected various bacteria into a vein in rabbits and found that they penetrated into the gall bladder in the course of eight hours or less. Typhoid, paratyphoid, colon and dysentery bacilli proliferated in the gall bladder and were found flourishing there after four months, long after the bacilli had vanished from the marrow, urine and liver. Intravenous injection of typhoid bacilli was always followed by a suppurative but rapidly healing inflammation of the mucosa of the gall bladder. The proliferation of the typhoid bacilli in the gall bladder did not confer agglutinating power on the blood. The typhoid bacilli in the gall bladder are liable to be eliminated in the feces from time to time. It proved impossible to free the bile from injected germs by any therapeutic measures: even intravenous injection of antiseptics failed to render the bile sterile.

73. **Camphor and Atropin Poisoning.**—Löbl analyzes 6 cases of severe poisoning from the use of camphor and the same number of cases of belladonna or hyoscyamin poisoning, all terminating in recovery. The atropin or oil of hyoscyamus was taken internally by mistake in 4 instances. In the fifth eczema on a child was treated with a lotion prescribed for the mother's rheumatic pains, followed by symptoms of atropin poisoning on the part of the child. In the sixth case, a physician prescribed atropin suppositories in mistake for belladonna. The woman presented the typical picture of atropin poisoning when seen soon after she had used the suppositories. The atropin in the stomach should be removed by emetics, followed by lavage after an injection of morphin. Purgatives and enemas are also useful in case the poison was taken by the mouth. If injected, the place of injection should be cut into and the blood squeezed out. Potassium permanganate is said to be a chemical antidote to atropin. The lavage can be done with water tinted with the permanganate to a pale bluish pink; the permanganate can be given internally in spoonfuls of a .25 to .5 per cent. solution. Husemann recommends administration of tannin, and others iodin and potassium iodid. Morphin is extremely valuable, but it has no action on the heart, and in case of stupor, coma or paralysis it may do actual harm. In such case stimulation of the skin, black coffee, camphor, caffein, etc., are indicated. The nervousness and insomnia are best combated by tepid baths, and the patient should drink as copiously as possible. A large proportion of the atropin poisonings on record were due to carelessness in prescribing. Very small doses may affect a susceptible person. Féjer's patient presented serious symptoms after the mere instillation of a little atropin in the eye. Intoxication has followed even doses of 1 or 2 mg. and .01 gm. has proved fatal to children. In using the scopolamin-morphin method of anesthesia, extreme caution is required to prevent poisoning. In regard to camphor poisoning, Dörr advises lavage of the stomach as less weakening than repeated vomiting. The intestines can be emptied with sulphate of magnesia or of soda or calomel. Castor oil should be avoided, as also alcohol and milk, as these dissolve the camphor. In case of collapse, stimulation of the skin, and opiates for excitement, injection of morphin, chloral by the rectum or sodium bromid. The patient must be kept warm. Jaksch recommends venesection and saline infusion, and Berkholz advises white sugar as an antidote. Possibly the sugar acts by hastening the transformation of the camphor into campho-glycuronic acid.

74. **Standard for Normal Feces.**—Oefele's pioneer work in the study of the feces requires a normal standard for comparison before the results can be applied to practical use in the clinic. He suggests as a basis for study that the feces of well-to-do persons, su as those who visit the spas and take courses of mineral waters, should be used to get the average of a large number. It might be desirable if a standard test diet could be arranged for the purpose, free from waste material; but, on the whole, it is better, he thinks, to study large numbers of persons rather than a small number on a prearranged diet. Examination of the feces of large numbers of guests at a watering place would produce a composite standard for the average feces, which could be utilized in study of the coprology of well-to-do patients. The expense of such research confines it exclusively to such material. Unless a normal standard is determined in some such way, the study of coprology will be aimless.

79. **Experimental Injection of Cholin.**—A weak solution of cholin injected directly into the testicles or spleens of small animals caused changes similar to those observed under exposure to radium.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed XLV, page 112½.

82 (LVI, No. 1.) *Ergebnisse der abdominalen Radikal-Operation des Gebärmutterscheidenkrebses mittels Laparatomia hypogastrica (utero-vaginal cancer). G. Brunet.
83 Ueber epitheliale Schläuche und Cysten in Lymphdrüsen (glands). Id.
84 Zur Frage der konservativen Myom-Operationen. R. Graf.
85 Zur Lehre vom Scheintod der Neugeborenen (apparent death of newborn). F. Ahlfeld.
86 Ueber den Kohlehydratstoffwechsel und alimentäre Lävulosurie in der Schwangerschaft (carbohydrate metabolism, etc., in pregnancy). H. Schroeder.
87 Zur Kenntnis des primären Chorion-Epithelioms der Tube. W. Risel.
88 Ueber die prophylaktische Wendung (version). E. Kraus.

82. **Results of Abdominal Ablation of Utero-vaginal Cancer.**—Brunet devotes 87 pages to the pathologic anatomy of the 70 patients with uterovaginal cancer operated on at Mackenrodt's private clinic. In determining whether the regional glands are involved, the discovery in regard to a gland of adhesions to the wall of the vessel; or of laceration of a gland during the operation, was always followed by the finding of unmistakable cancerous involvement of the gland.

Brazil-Medico, Rio de Janeiro.

Last indexed XLIII, page 112⅑.

89 (XVIII, No. 36.) *Anesthesia cirurgica na infancia. A. Guimaraes.
90 (Nos. 37-38.) Favus atypico. F. Terra.
91 *Embalming in Rio.—Embalsamientos no Rio de Janeiro. I. da Rocha.
92 (No. 39.) Prophylaxia da febre amarella (Report of chief of anti-yellow fever sanitary service). C. C. de Mendonca.
93 (No. 40.) *Da ignipunctura nas arthrites tuberculosas. A. Guimaraes.
94 (No. 41.) Da osteotomia obliqua subtrochanteriana nas ankyloses do quadril. A. de P. Guimaraes.
94½ Das indicaçoes de intervencoes cirurgicas nas lesoes cerebraes. Paes Leme. (Continued.)
95 (No. 42.) Consideraciones geraes sobre o meningismos e a meningite. F. Moraes.
96 Sobre o granuloma venereo no Rio Grande do Sul. F. Terra.
97 (Nos. 43-5.) Do chorion-epithelioma maligno de Marchand. J. T. N. de Gouvea.
98 (No. 46.) Edema agudo anglo-neurotico. H. Roxon. One case.
99 Notificaçao compulsoria. L. M. dos Santos.
100 (XIX, No. 1.) *Complicaçoes oculares da variola. Abreu Fialho.
101 A "fourth disease" em Petropolis. M. Guimaraes.
102 (No. 3.) Das perforaçoes da membrana tympanica e seu tratamiento. L. Rocha.
103 Fracturas e luxaçoes. A. de Mello. (Concluded.)
104 (No. 4.) Neurasthenia. M. Pereira.
105 (No. 6.) Prophylaxia da febre amarella (yellow fever). B. Carvalho.
106 (No. 7.) Pathogenia e therapeutica dos edemas. P. Guimaraes.

89. **Anesthesia for Children.**—Guimaraes advocates chloroform for long operations and ethyl chlorid for short ones when they are to be performed on children. Spinal anesthesia is good and effectual, but it frightens the children too much.

91. **Embalming in Rio.**—Da Rocha gives a list of prominent persons who have been embalmed in his city and exposed to public view weeks or months afterward. The list includes the pianist Gottschalk, whose public funeral later at Philadelphia was an ovation to his memory. Only one medical name is in the list.

93. **Ignipuncture of Tuberculous Joints.**—Guimaraes reviews the history of this intervention and describes the excellent results attained in a case of a tuberculous hip-joint affection in his own experience. After ethyl chlorid anesthesia, five times the actual cautery was inserted in the joint down to the bone, and a compressing bandage then applied. About three weeks later chlorid of zinc was injected into the joint, and the injection was repeated a fortnight later. The results were most excellent both in regard to the prompt healing of the tuberculous lesions and the restoration of function.

100. **Eye Affections in Smallpox.**—Abreu Fialho has observed ocular affections in a large number of cases of smallpox. Both eyes were affected in 16 out of the 65 patients with eye troubles from this cause; total blindness resulted in 4, and in 15 the sight of one eye was completely lost. About 50 of the patients were under 18. Fourteen differen kinds of ocular lesions were observed, but the majority were superficial keratitis and keratoiritis with hypopyon. It is important, he says, to open the eyelids by mechanical measures when they are much involved, and to instill an antiseptic or to apply an eye wash of methylene blue in a concentrated solution.

Revista de Medicina y Cirugia, Havana.

Last indexed XLV, page 364.

107 (X, No. 2.) * Necesidad de la vacunacion y de la revacunacion a todas aquellas personas que han tenido la viruela (vaccination after smallpox). V. de la Guardia.
108 (No. 3.) *Polineuritis mecanica de la mujer (in women). R. P. Vento.
109 Estudio de las anginas piocianicas. F. Torralbas.
110 (No. 4.) Oftalmia simpatica por traumatismo de larga fecha (accident 20 to 24 years before). J. L. Dehogues.
111 Valor de la intervencion quirurgica en un caso de fractura compleja del craneo sin herida exterior (skull wound without external lesion). F. G. Roura.
112 (No. 5.) *Rapida purificacion de la vacuna anti-variolosa. V. de la Guardia.
113 (No. 6.) Anatomia topografica del bazo (of spleen). C. A. C. Bustillos.
114 (No. 7.) Cheese.—Queso. L. M. Cowley.
115 (No. 8.) Anatomia topografica del pancreas. A. Serra y Perez.
116 L'estovaina como anestetico local. I. Tonarely.
117 (No. 9.) Nuevo procedimiento de nefrectomia subcapsular. J. Albarran.
118 Necrosis de origen gripal en un sifilitico. O. Amoedo.
119 *Forma insolita de impaludismo pernicioso. C. M. Garcia.
120 *Neumonias pneumococcicas. Localizacion de la infeccion en el aparato genital. R. Menocal.
121 Tratamiento de la fiebre tifoidea. R. G. Mon.
122 Profilaxia de las complicaciones auriculares de las fiebres eruptivas y de la grippe. G. M. Landa.
123 Efectos nocivos del tabaco en el aparato auditivo. Id.
124 Vomitos acetonemicos, periodicos, ciclicos en los ninos (in children). G. Arostegui.

107. **Necessity for Vaccination After Smallpox.**—De la Guardia is chief of the vaccination service in Cuba, and he says that he has had occasion to vaccinate 1,599 persons within a certain period, 328 of whom presented signs of having already had smallpox. Of these 328, 47 had never been vaccinated, and the vaccination resulted positively in 17. The results were also positive in 48 of the 263 who were revaccinated. The results were thus positive in 65 out of 328 persons who had already passed through smallpox, about 20 per cent. of the total.

108. **Mechanical Polyneuritis in Women.**—Vento's patient was a woman of 31—a vi-para—who had suffered from paralysis of arms and legs two years previously, with considerable pain in the muscles. The attack of paralysis lasted about two months, and then the patient gradually recovered the use of her limbs, but the paralysis recurred about a year later and persisted for several weeks. The paralysis of the arms finally yielded to hypodermic use of strychnin, but the legs remained paralyzed. The uterus was in retroversion, with cervical endometritis and laceration. The displacement of the uterus was corrected, after which the paralysis of the legs rapidly subsided and the patient was discharged, quite cured, in less than three weeks. Vento accepts compression of the sacral plexus and its branches by the retroverted uterus as the direct cause of the paralysis of the legs. The compression of these nerves also induced vascular disturbances which interfered with normal circulation in the spinal cord and prevented its proper nourishment, thus secondarily entailing the paralysis of the arms. This assumption of a mechanical polyneuritis was confirmed by the gradual subsidence of all the symptoms under treatment based on it.

112. **Purification of Vaccine.**—De la Guardia relates experiences which sustain the claims made for the method of purifying vaccine by passing air charged with chloroform through it according to the technic of Alan Green.

119. **Rare Form of Pernicious Malaria.**—Garcia's patient was a 9 months' babe whom he found absolutely unconscious and insensible, temperature subnormal, pulse filiform, 130 to the minute, the skin pale and dry, respiration rapid but regular, and no contractures. The attack had come on suddenly with a dry cough; the comatose condition followed in a few minutes. There were no pathologic antecedents in the child or the parents, but the locality (Vera Cruz) suggested the possibility of malarial intoxication, and Garcia made a subcutaneous injection of 1 gm. (15 grains) of quinin hydrochlorid. He always uses this dose in pernicious malaria, irrespective of the age of the patient. He also gave a rectal injection of 2 liters of warm artificial serum and had the child wrapped in hot wet sheets, with cold applications to the head. The drop of blood that escaped when the quinin was injected was almost black. A few minutes after the injection the symptoms began to subside, and in less than four days there was no trace of the child's illness except a small abscess on the left buttock where the quinin had been injected.

120. **Pneumococcus Infection of Genital Apparatus.**—Menocal describes 3 cases in which pneumonia of the lungs was complicated by a pneumococcus vaginalitis and thrombophlebitis of both spermatic cords in two patients and by orchi-epididymitis in the third. The patients were men of from 38 to 51 years of age. No pneumococci could be found in the genital lesions, but the pneumococcal origin of the complications, he thinks, is beyond question, for reasons which he enumerates.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

JAHRESBERICHT UEBER DIE FORTSCHRITE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN UMFASSEND BACTERIEN, PILZE UND PROTOZOEN Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben. By Dr. med. P. von Baumgarten and Dr. med. F. Tangl. Neunzehnter Jahrgang, 1903. Paper. Pp. 1,220. Leipzig: Verlag Von S. Hirzel, 1905.

A LABORATORY MANUAL OF PHYSIOLOGICAL CHEMISTRY. By E. W. Rockwood, Ph.D. Second Edition, Revised and Enlarged, with one colored plate and three plates of Microscopic preparations. Cloth. Pp. 229. Price, $1.00 net. Philadelphia: F. A. Davis & Co., 1906.

BODILY DEFORMITIES. The Nature, Causes, Variety and Treatment. A Series of Lectures. By E. J. Chance, F.R.C.S. Edited by J. Poland, F.R.C.S. Second Edition, in two volumes. Vol. I. Cloth. Pp. 315. Price, 6s. net. London: Smith, Elder & Co., 1905.

MASSAGE AND THE ORIGINAL SWEDISH MOVEMENTS, their Application to Various Diseases of the Body. By K. W. Ostrom. Sixth edition, revised and enlarged, with 115 illustrations. Cloth. Pp. 184. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1905.

NASAL SINUS SURGERY, with Operations on Nose and Throat. By B. Douglass, M.D. Illustrated, with 67 full-page half-tone and colored plates, including nearly 100 figures. Cloth. Pp. 264. Price, $2.50 net. Philadelphia: F. A. Davis & Co., 1906.

A MANUAL OF BACTERIOLOGY. By H. U. Williams, M.D. Revised by B. M. Bolton, M.D., 108 illustrations. Fourth edition, revised and enlarged. Cloth. Pp. 357. Price, $1.75. Philadelphia: P. Blakiston's Son & Co., 1905.

WALKING FOR EXERCISE AND RECREATION, with Rules and Special Exercises for Overcoming Common Faults in Walking. By W. R. C. Latson, M.D. Illustrated. Paper. Pp. 38. Price 10c. New York: Health-Culture Co.

REFRACTION, Including Muscle Imbalance and the Adjustment of Glasses. By R. S. Copeland, A.M., M.D., and A. E. Ibershoff, M.D. Cloth. Pp. 144. Price, $1.50 net. Philadelphia: Boericke & Tafel, 1906.

THE PHYSICAL EXAMINATION OF INFANTS AND YOUNG CHILDREN. By T. W. Kilmer, M.D. Illustrated with 59 half-tone engravings. Cloth. Pp. 86. Price 75c net. Philadelphia: F. A. Davis & Co., 1906.

TWENTY-FIRST REPORT OF THE SOCIETY FOR INSTRUCTION IN FIRST AID TO THE INJURED. Paper. Pp. 22. New York: Published by the Society.

CHRISTIANITY AND SEX PROBLEMS. By H. Northcote, M.A. Cloth. Pp. 257. Price, $2.00 net. Philadelphia: F. A. Davis & Co., 1906.